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Dr. King’s research work is in the areas of: Computer-Mediated-Communication, The Internet and Psychology, E-Learning and Distance Education, The Internet and Global Collaboration, Foreign Aid Projects in Developing Nations, Knowledge Management, Intelligence & Homeland Security Systems, Health Information Science & Management. He has published in several top Information Systems Conference Proceedings and Journals (IFIP, ACIS, PACIS, IRMA, JHE, IBER, RBIS). In addition, Dr King serves on several editorial boards in the research community. He has received several research presentation “Best Paper” awards in Seattle, USA, Bangalore, India, Las Vegas, USA, and Venice, Italy. As new research disciplines develop, Dr. King expands his horizons, investigates, experiments and contributes to intellectual consortiums and forums. He served as the Chair for the Fall 2007 and Spring 2008 Intellectbase International Consortium conferences. Currently, he serves as the Program Coordinator for International Institute of Academic Research.
Editor’s Message

My sincere gratitude goes to the Intellectbase International Consortium (IIC) Team for their hard work in producing this Issue. In addition, I want to thank all of the Executive Editorial Board Members, Reviewers’ Task Panel, Contributing Editors and the Advisory Board for their efforts to make IJAISL a great academic journal. They work hard to review the many papers submitted and provide a level of consistency for IJAISL reviews. The articles in this issue offer intellectual contributions and continue to focus on broadening intellectual resources, understanding, development and exchange of ideas among global research professionals.

The IJAISL is an intellectually reviewed journal of present-day research in quantitative accounting, information science and qualitative leadership skills. Examinations of meta-analyses of empirical work in accounting, information processing and leadership, useful for the understanding of their respective behaviors regionally as well as internationally, are the core of this journal.

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THEORETIC MODELING OF MARKETING VARIANCES: THE NEED FOR A NEW ACCOUNTING MODEL USING ECONOMIC GEOMETRY

Mike Thomas¹ and Ted Mitchell²
Humboldt State University, USA¹ and University of Nevada, USA²

ABSTRACT
This paper is theoretic in nature, developing a new model for calculating the differences between budgeted and actual performance. Differences, or “variances,” are a main, quantitative tool for performance evaluation. The current model was developed for manufacturing applications. However, when it is used in marketing applications, the assumptions allowing the model to work in manufacturing settings do not hold. This results in incorrect “signals” from the variance reports, reducing their effectiveness for marketing performance evaluation and continuous improvement activities. Probably the most common performance evaluation reports from the accounting information system are variance reports. Our traditional model is based upon arguments and assumptions made over fifty years ago when creating cost variance formulas for manufacturing environments. Cost variance analysis decomposes a total variance into price and usage components. This two-variance model is a simplification of a theoretic three-variance model, which also includes a joint variance. The joint variance results in certain situations from the interaction between the price and usage variances. As variance analysis moves into new fields, such as marketing, and new applications, such as non-financial performance measures, both models can produce biased performance evaluation information. This paper demonstrates the errors that can result with both models. Historically, both theoreticians and practitioners argued the errors were not relevant to manufacturing performance evaluation applications. Thus, the two-variance model was accepted, and has become the only model taught in management and cost accounting, as well as marketing, classes. This paper argues that the assumptions justifying the two traditional models do not hold in marketing applications, and thus, a new variance model is needed to avoid the calculation errors resulting from our traditional model. This new model, based upon the geometry of variance analysis, correctly calculates both the primary and residual (joint) variances in all four economic scenarios. The model is illustrated and compared to the traditional model in a production cost example, and in a common sales performance evaluation application.

Keywords: Management Accounting Systems, Cost Variances, Marketing Variances, Marketing Performance Evaluation

BACKGROUND AND LITERATURE REVIEW
Analyzing cost variances from budget is a primary performance evaluation model used in performance evaluation. The model, when applied to non-manufacturing evaluations, has been recently criticized, though, for being adapted to production cost control. While the adaptation was appropriate based upon assigned responsibilities in production environments, managerial marketing responsibilities require different variance calculations (Bentz and Lusch, 1980; Lehman, 2002). Marketing research now
argues we need to re-visit the underlying geometry of variance analysis in search for a new variance model fitting their performance evaluation needs (Weber, 1996; Hulbert and Toy, 1977; Mitchell and Olsen, 2003). Figure 1 illustrates the geometry of variance analysis:

**Figure 1: Areas of Primary Variance**

![Diagram of Areas of Primary Variance]

To understand the primary variances, it is useful to imagine a rectangular tablet A, with the length of one side representing actual price and the length of the other side representing actual quantity. Tablet A’s area represents the total actual cost, and includes Areas 1 and 3 in Figure 1. A second tablet, B, represents the total budgeted cost (Areas 1 and 2).

The two tablets overlap (Area 1). Area 2 is the primary quantity variance, and Area 3 is the primary price variance. In Figure 1, there is no residual or joint variance. The difference between the actual cost and the budgeted cost is equal to the sum of the two primary variances. Consider a different situation in Figure 2:

**Figure 2: The Geometry of a Joint Variance**

![Diagram of The Geometry of a Joint Variance]

In Figure 2, actual cost is greater than budgeted cost. Area 1 represents the budgeted cost, \( C_b = P_b Q_b \). The sum of areas 1, 2, 3 and 4 represent the actual cost, \( C_a = P_a Q_a \). The difference between the two total costs, \( C_a - C_b \), is the sum of areas 2, 3, and 4. In this case, Tablet B (budgeted cost) rests upon Tablet A (actual cost).

Area 2 again represents the primary quantity variance; the change in cost caused by the change in quantity, while holding price constant at \( P_b = $1 \). Area 3 again represents the primary price variance; the change in cost caused by a change in the purchase price, when holding quantity constant at \( Q_b = 3 \).

In Figures 1 and 2, Area 2 is the same primary quantity variance with the same magnitude, and Area 3 is the same price variance with the same magnitude. The only difference between Figure 1 and 2 is the
joint variance. Figure 1 has no joint variance. In Figure 2, Area 4 represents the joint variance, and reflects the impact on cost of simultaneous changes in both price and quantity.

The Four Economic Cases

Figures 1 and 2 represent two of four possible economic scenarios:

- Case 1: \( P_a > P_b \) and \( Q_a > Q_b \) (Figure 2)
- Case 2: \( P_a > P_b \) and \( Q_a < Q_b \) (Figure 1)
- Case 3: \( P_a < P_b \) and \( Q_a > Q_b \)
- Case 4: \( P_a < P_b \) and \( Q_a < Q_b \)

Translating Geometry into Algebra

To apply variance analysis to manufacturing performance evaluation, Amerman (1953) created a three-variable algebraic model that includes the two primary variances and the joint variance:

1. \( P_b \times (Q_a - Q_b) \) = a primary quantity or volume variance (Area 2 in Figure 2),
2. \( Q_b \times (P_a - P_b) \) = a primary price variance (Area 3 in Figure 2), and
3. \( (P_a - P_b) \times (Q_a - Q_b) \) = joint or residual variance (Area 4 in Figure 2).

(Subscripts: \( a = \text{actual}, b = \text{budgeted} \))

About fifty years ago, accounting researchers debated the algebraic solutions (Amerman, 1953; Banerjee, 1953; Vance, 1950; Watson, 1960; Weber, 1963). While each researcher identified a flaw in the algebra, unique to a particular economic scenario, and proposed a solution, none investigated all four economic scenarios simultaneously. While Vance (1950) was the first to demonstrate how variance analysis produced different types of errors under different cases, Amerman (1953) and Banerjee (1953) were the first to formally classify the four possible economic scenarios. However, all of these early authors failed to notice the equations do not separate the joint variance from the primary variances in all four situations. Amerman (1953) applied the three-variance model to Case 1, but not to the other three cases. Banerjee (1953) criticized Amerman for the omission, but failed to note the inflated variances in his own three-variance solution. Watson (1960) also failed to note the problem of inflated variances in the three-variance model because he provided different numerical examples for each of the four cases.

Thus, no general algebraic model resulted that can be universally applied. Instead, these researchers developed assumptions allowing their models to work in the limited scenario each identified. The two primary assumptions are: (1) small errors due to the allocation of small residual variances should be of little concern, and (2) the conventional two-variance solution provides the correct solution in most practical manufacturing cases (Amerman 1953).

Reasons for the General Acceptance of the Two-Variance Model

Amerman also derived a simplified two-variance model. Combining the primary price variance with the joint variance: \( C_a - C_b = P_b \Delta Q + Q_a \Delta P \). With the two-variance model, the price variance becomes $4 (compare to Figure 2’s three-variance solution). Apparently, two related causes led to the general acceptance of the traditional two-variance model taught in our current Management and Cost Accounting texts. One was the first industrial revolution and the Scientific Management strategy.
developed to organize work in the new capital-intensive factories. Another was the emphasis on external financial reporting in this country.

A fundamental leadership axiom of Scientific Management is the “separation-of-duties” principle. Each department is organized as a separate “functional silo” with a goal to minimize its production costs. Because each department operates independently from other departments, measuring efficiency through departmental cost variance reports dominated cost accounting after the first industrial revolution.

Through the interaction with a related cause (i.e., this country’s emphasis on external financial reporting), the algebraic approach became entrenched. To assure financial statements were accurate, auditors required report articulation through a transaction-based financial accounting system following generally accepted accounting principles. This resulted in the need for the product’s “cost” to be objectively verified through a transaction-based journal entry recording system. Because financial statements report costs by resource (materials, labor, and overhead, versus for example, reporting costs by activities), algebraic equations were needed to calculate and journalize resource cost variances. Through journalized cost-attaching, financial accountants could provide a fully absorbed product cost within a simple-to-install and operate system that also was simple to understand (Johnson and Kaplan, 1987). Most importantly, though, such a system satisfied external reporting requirements. Using the standard cost systems developed with Scientific Management, the need for a simple two-variance solution and journalized cost variances was reinforced, and the algebra of the flexible-budget became the accepted model.

The three-variance model’s joint variance also was difficult to calculate in the paper-and-pencil environments of the early and mid-twentieth century. Nor was it readily interpretable and assignable to a single department or manager, and it defied systematic journal entries. Thus, practical arguments were used to reject the three-variance model in favor of the workable two-variance approach in the flexible-budget model. Probably the most pervasive practical argument for the two-variance approach came from Amerman (1953), who stated that if standards are current and variances small, joint variances should be of little concern. Thus, arbitrarily attaching the joint variance to the primary price variance will not significantly distort the reported results.

Other scholars have sought to design a compromise procedure maintaining the simplicity of the conventional two-variance model, but with a “valid” method of allocating the joint variance. Weber (1963) presented a summary of the various allocation methods, but all the alternatives had some disadvantage. The most damning is the argument that all allocations are arbitrary, and without a normative basis for allocating the joint variance, the two-variance model cannot be theoretically justified. Its only justification is in practice. It is simple, and the joint variance has no obvious interpretation for production management.

**Errors When Using the Two- and Three-Variance Models**

Whether the joint variance is allocated or not, and whether the two-variance or three-variance model is used, in three of the four possible economic scenarios, both models yield erroneous results, as summarized in Table 1.
Table 1: Algebraic Variance Models’ Errors

<table>
<thead>
<tr>
<th></th>
<th>Pa &gt; Pb</th>
<th>Pa &lt; Pb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qa &gt; Qb</td>
<td>Case 1</td>
<td>Case 3</td>
</tr>
<tr>
<td>3-variance model:</td>
<td>None</td>
<td>Quantity &amp; Joint</td>
</tr>
<tr>
<td>2-variance model:</td>
<td>Price variance</td>
<td>Price &amp; Quantity</td>
</tr>
<tr>
<td>Qa &lt; Qb</td>
<td>Case 2</td>
<td>Case 4</td>
</tr>
<tr>
<td>3-variance model:</td>
<td>Price &amp; Joint</td>
<td>Price, Quantity, &amp; Joint</td>
</tr>
<tr>
<td>2-variance model:</td>
<td>None</td>
<td>Quantity</td>
</tr>
</tbody>
</table>

The three-variance model inflates at least one of the primary variances in three of the four cases. Also, it always generates a joint variance, and in Cases 2 and 3, this is wrong because no joint variance exists (area 4). For example, the three-variance solution in Case 1 provides the correct measurements for the primary variances. However, the price variance is inflated in Case 2, the quantity variance is inflated in Case 3, and both of the primary variances are inflated in Case 4. An inspection of the geometry demonstrates the source of the inflated variances is the inclusion of the joint variance.

The two-variance model also inflates a primary variance in three of the four possible cases. Kloock and Schiller (1997) note this model arbitrarily allocates the joint variance to the price variance without any theoretical justification (although it was pragmatically justified in practice). Banerjee (1953, p. 352) noted the inflation problem in the two-variance model when he wrote, “In all these (three) cases the method gives wrong results.” The calculations supporting Table 1 will be illustrated in the next section (Figures 3 – 6).

A NEW MODEL FOR VARIANCE ANALYSIS

If variance analysis is to be widely adopted outside the world of production control and cost accounting, a new model for calculating unbiased variances is needed. In marketing management, the standards and forecasts used in budgets are not as tight as they are in production. Inaccurate standards imply large variances, and large variances imply large joint variances, and large joint variances imply large potential errors due to inflated variances. The central problem is the lack of correspondence between the geometry and algebra of each case. The general solution is to have a different equation for each of the four cases.

The use of four different equations to generate accurate measures of the primary variances is too awkward for practical use, however. Fortunately, all four have important properties in common, allowing for the creation of a single equation. The most important of these properties is all use the minimum potential value as the level to hold a variable constant when making independent changes in the other variable. The second property is all the independent changes in a variable are calculated in the conventional direction of budgeted value subtracted from actual value. The third property is all four equations can be defined as having a residual variance as long as the residual variance is always equal to zero in cases 2 and 3.

The “Minimum Potential Performance Budget” Solution

The decomposition equation correctly dealing with all four cases is a three-variance solution modeled on the common properties of the four distinct equations:

\[ C_a - C_b = P_x (Q_a - Q_b) + Q_x (P_a - P_b) + r \]
where:

\[ C = \text{total cost}, \]
\[ Q = \text{total quantity of material purchased}, \]
\[ P = \text{cost per unit of material purchased}, \]
\[ P_x(Q_a - Q_b) = \text{the primary quantity or volume variance}, \]
\[ Q_x(P_a - P_b) = \text{the primary price variance}, \]
\[ r = C_a - C_b - P_x(Q_a - Q_b) - Q_x(P_a - P_b) = \text{joint or residual variance unexplained by the independent changes} \]

Subscripts: \( a = \text{actual}, \ b = \text{budgeted}, \ x = \text{minimum of} \ a, \ b. \)

This equation correctly calculates the primary variances. In Cases 2 and 3, the definition of the primary variances ensures the residual variance will equal zero. In cases 1 and 4, the residual variance equals the joint variance, and the algebra is consistent with the geometry of each economic scenario. This can be seen by comparing the traditional variance models with the MPPB model in Figures 3 – 6:

**Figure 3: Case 1:** \( P_a > P_b \) and \( Q_a > Q_b \)

**The Geometric Solution:**

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_a = $2 )</td>
<td>( Q_a = 4 )</td>
</tr>
<tr>
<td>( P_b = $1 )</td>
<td>( Q_b = 3 )</td>
</tr>
</tbody>
</table>

Area 1 = Tablet B
Budgeted total cost
\( P_bQ_b = \$3 \)

Area 2 = Primary Quantity Variance
\( P_b(Q_a - Q_b) = \$1 \)

Area 3 = Primary price variance
\( Q_b(P_a - P_b) = \$3 \)

Area 4 = Joint Variance
\( (P_a - P_b)(Q_a - Q_b) = \$1 \)

**The Three-variance Solution:**

Price Variance: \( Q_b(P_a - P_b) = 3(\$2 - \$1) = \$3 \)
Quantity Variance: \( P_b(Q_a - Q_b) = \$1(4 - 3) = \$1 \)
Residual Variance: \( (Q_a - Q_b)(P_a - P_b) = (4 - 3)(\$2 - \$1) = \$1 \)

**The Two-variance Solution:**

Price Variance: \( Q_a(P_a - P_b) = 4(\$2 - \$1) = \$4 \)
Quantity Variance: \( P_b(Q_a - Q_b) = \$1(4 - 3) = \$1 \)

**The Minimum Potential Performance Budget Solution:**

Price Variance: \( Q_{\min}(P_a - P_b) = 3(\$2 - \$1) = \$3 \)
Quantity Variance: \( P_{\min}(Q_a - Q_b) = \$1(4 - 3) = \$1 \)
Residual Variance: \( (C_a - C_b) - [Q_{\min}(P_a - P_b)] - [P_{\min}(Q_a - Q_b)] = \$1 \)

(Note: * and red amounts represent incorrect calculations)
Figure 4: Case 2:  $P_a > P_b$ and $Q_b > Q_a$

**The Geometric Solution:**

<table>
<thead>
<tr>
<th>Price</th>
<th>$P_a = $2</th>
<th>$P_b = $1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area 1</td>
<td>$P_bQ_a = $3</td>
<td></td>
</tr>
<tr>
<td>Area 3</td>
<td>Primary price variance</td>
<td>$Q_b(P_a - P_b) = $3</td>
</tr>
</tbody>
</table>

| Quantity | $Q_a = 3$ | $Q_b = 4$ |

**The Three-variance Solution:**

- **Price Variance:** $Q_b(P_a - P_b) = 4($2 – $1) = **$4**
- **Quantity Variance:** $P_b(Q_a - Q_b) = $1(3 – 4) = **($1)**
- **Residual Variance:** $(Q_a - Q_b)(P_a - P_b) = (3 – 4)($2 – $1) = **($1)**

**The Two-variance Solution:**

- **Price Variance:** $Q_a(P_a - P_b) = 3($2 – $1) = **$3**
- **Quantity Variance:** $P_b(Q_a - Q_b) = $1(3 – 4) = **($1)**

**The Minimum Potential Performance Budget Solution:**

- **Price Variance:** $Q_{min}(P_a - P_b) = 3($2 – $1) = **$3**
- **Quantity Variance:** $P_{min}(Q_a - Q_b) = $1(3 – 4) = **($1)**
- **Residual Variance:** $(C_a - C_b) - [Q_{min}(P_a - P_b)] - [P_{min}(Q_a - Q_b)] = $0

(Note: * and red amounts represent incorrect calculations)
The Three-variance Solution:

Price Variance: \[ Q_b(P_a - P_b) = 3(1 - 2) = -3 \]
Quantity Variance: \[ P_b(Q_a - Q_b) = 2(4 - 3) = 2 \]
Residual Variance: \[ (Q_a - Q_b)(P_a - P_b) = (4 - 3)(1 - 2) = -1 \]

The Two-variance Solution:

Price Variance: \[ Q_a(P_a - P_b) = 4(1 - 2) = -4 \]
Quantity Variance: \[ P_b(Q_a - Q_b) = 2(4 - 3) = 2 \]

The Minimum Potential Performance Budget Solution:

Price Variance: \[ Q_{\text{min}}(P_a - P_b) = 3(1 - 2) = -3 \]
Quantity Variance: \[ P_{\text{min}}(Q_a - Q_b) = 1(4 - 3) = 1 \]
Residual Variance: \[ (C_a - C_b) - [Q_{\text{min}}(P_a - P_b)] - [P_{\text{min}}(Q_a - Q_b)] = 0 \]

(Note: * and red amounts represent incorrect calculations)
Figure 6: Case 4: $P_b > P_a$ and $Q_b > Q_a$

The Geometric Solution:

<table>
<thead>
<tr>
<th>Price</th>
<th>Tablet B = Budgeted total cost = Areas 1 + 2 + 3 + 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_a$ = $1$</td>
<td>$P_b$ = $2$</td>
</tr>
</tbody>
</table>

Area 1 = Tablet A
Actual total cost
$P_aQ_a = $3

Area 2 = Primary Quantity Variance
$P_b(Q_a - Q_b) = (3 - 4)(2 - 2) = $1

Area 3 = Primary price variance
$Q_b(P_a - P_b) = 4($1 - $2) = ($4)*

Area 4 = Joint Variance
$(P_a - P_b)(Q_b - Q_a) = ($1)

The Three-variance Solution:

Price Variance: $Q_b(P_a - P_b) = 4($1 - $2) = ($4)*

Quantity Variance: $P_b(Q_a - Q_b) = 2(3 - 4) = ($2)*

Residual Variance: $(Q_a - Q_b)(P_a - P_b) = (3 - 4)(2 - 2) = $1*

The Two-variance Solution:

Price Variance: $Q_b(P_a - P_b) = 3($1 - $2) = ($3)

Quantity Variance: $P_b(Q_a - Q_b) = 2(3 - 4) = ($2)*

The Minimum Potential Performance Budget Solution:

Price Variance: $Q_{min}(P_a - P_b) = 3($1 - $2) = ($3)

Quantity Variance: $P_{min}(Q_a - Q_b) = 1(3 - 4) = ($1)

Residual Variance: $(C_a - C_b) - [Q_{min}(P_a - P_b)] - [P_{min}(Q_a - Q_b)] = ($1)

(Note: * and red amounts represent incorrect calculations)

EVALUATING SALES PERFORMANCE USING THE MPPB MODEL

One of the most important decisions salespeople make on a day-to-day basis involves the abandonment of prospects and the initiation of new contacts. Salespeople have limited amounts of time and must choose to continue the selling process with a current prospective customer, or drop the attempt and start a new lead with a new prospect. This is a very difficult task and many salespeople keep records of the number of prospects visited in a period and analyze their rate of sales-per-prospect contacted for clues about improvement.

There are many variations of this problem. For example, sales per day, calls per prospect, conversion rates, and batting averages are different measures used to explore sales effectiveness. For the purpose of this paper we will concentrate on the rate of sales per prospect or potential account, and the number of accounts or prospects visited.
The classic approach to the evaluation of salespeople involves the comparison of the individual’s performance against a standard or quota. If the person’s performance is deemed to be significantly above or below standard, an investigation into the causes of the specific deviation is initiated. The focus of the conventional comparison is the deviations in the actual inputs and activities (e.g., the difference in the number of days worked, number of prospects visited, sales per call, orders per lead, etc.). To illustrate, Table 2 presents sales performances for four salespeople:

### Table 2: The Performance of Four Salespeople

<table>
<thead>
<tr>
<th></th>
<th>Juan</th>
<th>Jill</th>
<th>Soleil</th>
<th>Yoshiko</th>
<th>Quota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales, $S$</td>
<td>$468,750</td>
<td>$281,250</td>
<td>$281,250</td>
<td>$168,750</td>
<td>$300,000</td>
</tr>
<tr>
<td>Total variance</td>
<td>+$168,750</td>
<td>−$18,750</td>
<td>−$18,750</td>
<td>−$131,250</td>
<td></td>
</tr>
<tr>
<td>Prospects Visited, N</td>
<td>75</td>
<td>75</td>
<td>45</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>Efficiency variance</td>
<td>+15 (20%)</td>
<td>+15 (20%)</td>
<td>−15 (−20%)</td>
<td>−15 (−20%)</td>
<td></td>
</tr>
<tr>
<td>Sales per Prospect , R</td>
<td>$6,250 (25%)</td>
<td>$3,750 (−25%)</td>
<td>$6,250 (25%)</td>
<td>$3,750 (−25%)</td>
<td>$5,000</td>
</tr>
<tr>
<td>Effectiveness variance</td>
<td>+$1,250 (25%)</td>
<td>−$1,250 (−25%)</td>
<td>+$1,250 (25%)</td>
<td>−$1,250 (−25%)</td>
<td></td>
</tr>
</tbody>
</table>

This typical variance report provides measures of the deviations from quota. The overall measure of output is the sales revenue produced by each salesperson. The input measures are the total number of different prospects visited (N), and the rate of sales earned per prospect (R). Marketing management believes the number of prospects visited is a measure of effort or efficiency, and the average sales per prospect is a measure of effectiveness at converting leads into revenues (Spiro, et al., 2003).

In evaluating performance, the marketing manager notes Juan and Jill have both worked harder than Soleil and Yoshiko by calling on more prospects. She also notes Juan and Soleil have worked more effectively than Jill and Yoshiko by producing more revenue per prospect. However, the manager finds nothing in the conventional performance evaluation report to help her establish which of the deviations from quota is having the largest impact on sales revenue.

The report does not show how much revenue can be attributed to Juan’s increase in sales effort, or how much revenue was lost because Yoshiko did not reach quota on the number of prospects visited. The report easily can lead to the incorrect assumption that equal percentage variances have the same impact on sales. In other words, each sales person performed equally as efficient or inefficient, and equally as effective or ineffective.

### Applying the MPPB Model to Marketing Variance Analysis

Using the MPPB model, the difference between actual revenue and quota, $S_a - S_b$, is decomposed into the sum of the two impacts due to input deviations: $S_a - S_b = N_m(R_a - R_b) + R_m(N_a - N_b) + r$

where:

- $S$ = total sales revenue
- $R$ = rate of sales per prospect
- $N$ = total number of prospects visited (leads processed)
- $N_m(R_a - R_b) = $ the impact on sales due to deviation in sales per prospect
- $R_m(N_a - N_b) = $ the impact on sales due to deviation in visited-prospects
- $r = $ residual impact not explained by the two individual deviations: $r = S_a - S_b - N_m(R_a - R_b) - R_m(N_a - N_b)$
Subscripts:  \( a = \) actual, \( b = \) quota or budgeted, \( m = \) minimum of \( a, b \)

The results are illustrated in Table 3:

**Table 3: An Analysis of the Impact Caused by Deviations from Quota**

<table>
<thead>
<tr>
<th></th>
<th>Juan</th>
<th>Jill</th>
<th>Soleil</th>
<th>Yoshiko</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference between actual and planned level of sales to be explained: ( S_a - S_b )</td>
<td>$168,750</td>
<td>$-18,750</td>
<td>$-18,750</td>
<td>$-131,250</td>
</tr>
<tr>
<td>Efficiency impact (i.e., due to deviation from planned rate of prospects visited): ( R_m(N_a - N_b) )</td>
<td>+15 visits 20% $75,000</td>
<td>+ 15 visits 20% $56,250</td>
<td>– 15 visits –20% $–75,000</td>
<td>– 15 visits –20% $–56,250</td>
</tr>
<tr>
<td>Effectiveness impact (i.e., due to deviation from the planned sales per prospect: ( N_m(R_a - R_b) )</td>
<td>+$1,250 25% $75,000</td>
<td>–$1,250 –25% $–75,000</td>
<td>+$1,250 25% $56,250</td>
<td>–$1,250 –25% $–56,250</td>
</tr>
<tr>
<td>Residual impact due to joint changes: ( r )</td>
<td>$18,750</td>
<td>$0</td>
<td>$0</td>
<td>$-18,750</td>
</tr>
</tbody>
</table>

The absence of any information on the dollar impact on revenue due to deviations in sales activities may lead some to conclude, erroneously, equal percentage changes for inputs imply equal impacts for outputs. For example, Juan’s 20\% positive variance in prospects visited (efficiency) increases his overall sales revenue by $75,000. But Jill’s 20\% improvement has a smaller ($56,250) impact on sales. Both Juan and Jill have the same absolute and percentage variances, but their variances have different absolute dollar impacts on overall performance (sales revenues). The same analysis is valid when comparing Soleil’s and Yoshiko’s efficiency.

Jill and Yoshiko missed their sales quota per prospect by the same amount and percentage, and may be misjudged to have performed equally. If their manager has the MPPB model results presented in Table 3, she can see the dollar impacts on overall performance due to the variances in effectiveness.

The impact due to Jill’s drop in sales per prospect is having a more serious impact on overall performance than Yoshiko’s drop in sales per prospect. Both have a 25\% deviation, but Jill’s drop is having a $75,000 impact on revenues, compared to Yoshiko’s impact of $56,250. Even if the traditional three-variance model is used, due to errors in how the variances are calculated, this information is not readily available for marketing management’s use in performance evaluation, as seen in Table 4.
Comparing the MPPB model results to the traditional 3-variance model

**Table 4: Comparing Variance Models**

<table>
<thead>
<tr>
<th>Variances</th>
<th>3-Variance Model</th>
<th>MPPB Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calls (N):</td>
<td>$5,000(75 – 60) = $75,000</td>
<td>$5,000(75 – 60) = $75,000</td>
</tr>
<tr>
<td>Sales (R):</td>
<td>60 × (\frac{$6,250 - $5,000}{75,000}) = $75,000</td>
<td>60 × (\frac{$6,250 - $5,000}{75,000}) = $75,000</td>
</tr>
<tr>
<td>Joint:</td>
<td>(\frac{$6,250 - $5,000}{(75 – 60)}) = $18,750</td>
<td>$468,750 – $300,000 – $75,000 – $75,000 = $18,750</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variances</th>
<th>3-Variance Model</th>
<th>MPPB Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calls (N):</td>
<td>$5,000(45 – 60) = ($75,000)</td>
<td>$5,000(45 – 60) = ($75,000)</td>
</tr>
<tr>
<td>Sales (R):</td>
<td>45 × (\frac{$3,750 - $5,000}{75,000}) = $56,250</td>
<td>$3,750(45 – 60) = $56,250</td>
</tr>
<tr>
<td>Joint:</td>
<td>(\frac{$3,750 - $5,000}{(45 – 60)}) = $18,750</td>
<td>$281,250 – $300,000 – $56,250 = $0</td>
</tr>
</tbody>
</table>

First, compare the efficiency variances (calls, N) for the two models in case 1 (Juan). The \$75,000 variances are the same for both models. In Case 2, though, Jill’s primary efficiency variance is different than the 3-variance model results. When comparing Juan and Jill (economic cases 1 and 2), their efficiency variances will be equal only when R (sales per call) is equal for both sales people. Because R is different for Juan and Jill, the 3-variance model calculates a joint variance for Jill when none really exists. This results in the 3-variance model overstating Jill’s efficiency variance.

Second, compare Jill’s and Yoshiko’s effectiveness (sales per customer, R). Both the 3-variance and MPPB models calculate the correct primary variance (\$75,000) for Jill. When comparing Jill and Yoshiko, though, their variances should have the same effect on total sales only when N (number of calls) is equal. For Yoshiko (economic case 4), the 3-variance model overstates both primary variances (efficiency, N, and effectiveness, R). The 3-variance model calculates a joint variance 200\% of the real joint variance, and in the wrong direction.
LIMITATIONS AND FUTURE RESEARCH

Most performance evaluations take far more inputs into account than simply sales per prospect and number of leads serviced. This model development has been limited to a two-variate cause-effect relationship. The classic four-factor planning model found in most marketing texts involves days worked (D), calls per day (W), orders per call (B), and sales per order (Z) (Spiro, et al., 2003).

A second related limitation is the focus on theoretic model development. Future research needs to address expanding the MPPB model to other marketing applications, as well as addressing more than two causal variables. We believe the MPPB model can be expanded to account for more than two-variable situations, and applied in these more complex analyses. Using the MPPB model, the difference between actual and budgeted sales performance might be written as:

\[ S_a - S_b = Z_m B_m W_m (D_a - D_b) + Z_m B_m D_m (W_a - W_b) + Z_m W_m D_m (B_a - B_b) + B_m W_m D_m (Z_a - Z_b) + r \]

where:

- \( S_a - S_b \) = difference between actual and planned sales performance
- \( Z_m B_m W_m (D_a - D_b) \) = impact due to deviation from planned level of working days
- \( Z_m B_m D_m (W_a - W_b) \) = impact due to deviation from planned rate of calls per day
- \( Z_m W_m D_m (B_a - B_b) \) = impact due to deviation from planned level of orders per call
- \( B_m W_m D_m (Z_a - Z_b) \) = impact due to deviation from planned order size
- \( r \) = residual impact not explained by the impact of individual deviations.

Another limitation is the short-run budget focus used in developing the MPPB model. Variances are calculated by using current quotas. Quotas change over time. Considering the multi-changes perspective inherent in long-run budgeting and continuous improvement, are there yet-unidentified implications for planning long-run activities resulting from using variances based on the lower-of-budget-or-current performance?

CONCLUSION

In marketing applications, the relative sizes of the primary variances are the primary symptoms of potential control problems (Mitchell and Olsen, 2003). The larger the primary variance, the greater the potential control problem. The need for unbiased measures of the primary variances is the justification for the MPPB model. The goal is to calculate the primary variances in a way that ensures the exclusion of the joint variances. The size of the errors by allocating the joint variance to one of the primary variances may be of little consequence when the standards are accurate and the variances are small, such as in production settings controlled by standard costing systems. But, when variance analysis is applied to non-production environments, the assumptions of good forecasts and small variances may not be valid, and a more accurate model, as proposed here, should be used.

Accountants identified the miscalculations resulting from the three and two-variance models many years ago, but dismissed the potential inaccuracies due to residual variances as offering “no reason for undue concern” (Amerman, 1953, p. 266). In more recent years, these models have received criticism for inappropriately affixing blame for deviations to departments and activities (Bentz and Lusch, 1980; Kloock and Schiller 1997). This paper proposes an alternative model based on the geometry of the four possible economic situations when comparing budgeted and actual results.
This paper presents the inaccuracies in our current variance models. Both the two and three-variance models produce incorrect variances in three of the four possible economic situations that can result from comparing budgeted and actual performance. The correct analysis for each situation is geometrically demonstrated, and the MPPB equations derived from it.

Current cost accounting pedagogy and practice is to ignore the joint variance, resulting in its inclusion in the price variance. Theoretic problems identified a half century ago are now resurfacing as real practical problems in performance evaluations. When applied outside of cost accounting environments (e.g., in marketing applications), the need to calculate unbiased measures of the primary variances, and isolating the joint variance, are even more important. It is hoped the proposed MPPB model in this paper can be easily adapted to situations in which unbiased measures are needed, such as in marketing performance evaluations.

REFERENCES


AN EXAMINATION OF THE LIQUIDITY OF FIRMS AROUND A FINANCIAL CRISIS

Dev Prasad, Ravi Jain and Yash R. Puri
University of Massachusetts Lowell, USA

ABSTRACT

There is a severe financial crisis that is plaguing the globe. The stock markets around the world continue to be in a downward spin despite billions of dollars having been poured in or in the process of being poured in as Governments offer bailouts mainly to financial institutions and to some firms. The 'liquidity' of banks and firms is being blamed as the root cause of all troubles for the current crisis. Studies of the earlier 1997 Asian financial crisis also laid the blame on 'liquidity' along with other factors. However, there appear to be only a few studies that have examined 'liquidity' at the firm level. Most of these studied financial institutions and have been limited to a few year prior to the crisis period or a few years around the crisis period. In addition, the immediate after-effects of the financial crisis observed may only be the short-term reaction.

This paper expects to contribute to the literature by taking a longer perspective of the post-crisis period to examine the 'liquidity' of firms in Indonesia, Thailand, and Korea before and after the crisis. Firms may react in one way to immediate after-effects of the financial crisis and then further react, possibly in a different way, based on the lessons they have learned from their experience of financial crisis. The results show that there is a significant difference in the short-term reaction and the longer-term reaction to the crisis in the post-crisis period. Further, this study also shows that the speed of recovery and return of liquidity varies from country to country.

Keywords: Financial Crisis, Liquidity, Korea, Indonesia, Thailand

INTRODUCTION

Currently, there is a severe financial crisis that is plaguing the globe. The current crisis was spawned in the USA and the shocks from it have sent tremors across the globe. In the short span from October 2007, the economies of USA, UK, the European Union, Japan and several other countries have been reeling including the emerging powers of India and China. Stock markets are in a downward spiral with no end in immediate sight. Governments of USA, UK, the European Union, Japan and several other countries have acted individually, in concert or through the IMF and poured billions of dollars in an effort to contain the crisis and taken other measures such as several interest rate cuts etc. However, even the bailing out of financial institutions has continued to leave industrial and commercial firms in a 'liquidity' crunch as per their management. The 'liquidity' of banks and firms is being blamed as root cause of all other troubles associated with the current crisis. Hundreds of firms have filed for bankruptcy. Job losses are in the millions. Home foreclosure signs are popping up more and more. Both economically and socially, the impact of the current crisis certainly is proving very costly worldwide.
A decade or so ago there was another financial crisis. This crisis started in Asia in 1997 but its effects also reached around the Globe. It spread from Asia to Latin America, to Europe and the USA. Earlier studies of the Asian financial crisis and subsequent crises in Latin America and Europe mainly examine the same from a macroeconomic perspective. There are only a few studies at the microeconomic level, which examine changes at the firm level.

Earlier studies generally have been limited to a few years surrounding the crisis year or to the pre-crisis period. None of them appears to have examined changes at the firm level in the after-math of the crisis in the longer run. Though studies of the earlier 1997 Asian financial crisis also laid the blame on 'liquidity' along with other factors, there are only a few studies that have examined changes in 'liquidity' at the firm level. They have mainly focused on the 'liquidity in the economy' or the liquidity of financial institutions. Thus, this study is motivated to fill a gap in the literature, and examines changes in the liquidity of firms during the pre-crisis period, the crisis period and the post-crisis period in the short-term, in the intermediate term, and in the longer term. This study examines two aspects related to changes in the liquidity of firms. The first aspect relates to the financial policies of firms. In the short-term, the reaction of firms is likely to be dominated by the immediate after-effects of the financial crisis, including the impact of government intervention. However, in the longer run for the post-crisis period, firms are likely to have greater internal control of their financial policies. This study, therefore, examines whether a lesson was learnt by firms and if they adopted 'safer' liquidity patterns in the long run or did they just return to 'business as usual' once the crisis was over. The second aspect relates to the time taken by firms to recover from the liquidity crunch.

This study examines changes in the liquidity patterns of firms over time in the three Asian countries: Indonesia, Korea, and Thailand, which faced a financial crisis during the same year: Thailand (July 1997), Indonesia (August 1997), and, Korea (November 1997). This choice was made based on the observation by Brimmer (1998) that these countries suffered the most from the financial crisis.

The rest of the paper is organized as follows. The first section provides a brief review of prior studies relating to the 1997 Asian financial crisis. This is followed by a section that details the data for the study, the variables examined, and the methodology employed. The results of the study are discussed in the third section. In the final section, the conclusions of the study are presented. Some ideas for further research are also presented in this section.

LITERATURE REVIEW

Prasad et al (2009) summarize the findings of some of the earlier studies which offered suggestions regarding the main contributing factors to the financial crises in Asia. Briefly the factors include loose government regulations; laxness in government and financial institution supervision; lack of openness; undisciplined financial practices such as risky financial structures; speculative and risky investments; weak corporate governance; ‘crony capitalism’ and corruption. In the case of Indonesia, Djiwandono (2004) also brings out the suspicions of the public about corruption involving bankers and officials of Bank Indonesia when the latter provided liquidity support to struggling banks during the financial crisis.

Some of the earlier studies include discussions of ‘liquidity,’ as related to the financial crisis. However, these discussions are in terms of market liquidity rather than firm-level liquidity. Brimmer (1998) suggests that the economies of Thailand, Indonesia and South Korea were able to expand rapidly with liquidity provided through aggressive lending by banks—both domestic and foreign—as well as foreign investments in the pre-crisis period. Rodrik (1999) suggests that trade orientation did not have much to
do with the severe liquidity problems, and, that the international capital markets did not do a good job of separating bad and risky ventures from the good. In the case of South Korea, Kang et al (2005) identify two steps as being particularly important in improving the liquidity of the markets in the post-crisis period. The two steps of 'reopening system' and 'mandatory electronic exchange trading system for benchmark issues' helped expand the government bond market.

Brimmer (1998) also suggests that the turnaround after the crisis was fueled by a multibillion-dollar infusion by the international community. Help also came in the forms of infusions by the International Monetary Fund (IMF) through their Structural Adjustments Programs (SAPs) of billions of dollars [Prasad et al (2006), Khambata and LaCrosse (2001)]. Kawai (2008/2009) argues in favor of stronger regional liquidity as a part of a strategy to stabilize global finance and avoiding future financial crises. In their study of the Thai stock market for a short period around the financial crisis, Pavabutr and Yan (2007) stress the importance of foreign flows in enhancing market liquidity.

A few studies discuss liquidity issues at the firm level. Shaw (1999) suggests that liquidity problems, at the end of 1997, forced many companies to undergo major financial restructuring. Yi (2005) suggests that firms can ensure an adequate level of working capital by adopting proper debt maturity structures, and, that the financial crises were caused by a mismatch of debt maturities with asset maturities. Bonin and Imai (2007) suggest that the news related to Korean banks' efforts to comply with the insistence by the IMF on foreign control had a larger impact on firms that had lesser profitability and liquidity. Ang et al (2004) study shares in the Indonesian, Malaysian and Thai stock markets and find that asset liquidity causes returns to behave differently during quiet and extraordinary periods. Further, they found the presence of price bubbles, mainly in the case of most liquid and most volatile shares.

Clearly, none of the earlier studies appears to have examined how the liquidity patterns of firms have changed in the after-math of the crisis especially in the longer run. Thus, this study is motivated to fill this gap in the literature by examining whether the financial crisis in a country led to a changes in the liquidity patterns of firm located in that country, not only in the short-term but also in the intermediate and the longer term. As has been mentioned earlier, the short-term reaction of firms may be dominated by the immediate after-effects of the financial crisis, including the impact of government intervention or possibly because of the IMF SAPs. However, in the longer run, for the post-crisis period firms may be able to have a greater internal control of their liquidity as the financial markets stabilize. If so, question that arises is whether the firms would adopt 'safer' liquidity policies or return to their 'good old ways.'

This study also addresses the question of ‘How long does it take to recover liquidity after a financial crisis?’ by examining the timeframe associated with the recovery from the effects of the liquidity crunch created by the financial crisis. A comparison of the changes in the liquidity of firms in the post-crisis period allows us to get a feel of the speed of the recovery.

**DATA AND METHODOLOGY**

As mentioned earlier, this study is motivated to examine changes in liquidity patterns of firms over time in three Asian countries—Indonesia, Korea and Thailand—‘that suffered the most from the 1997 financial crisis. The financial data for the industrial companies in these countries was obtained from the Compustat (Global) database for the 1994-2004 periods.

Five ratios are used to examine the changes in the liquidity of firms: (i) Current ratio = Current Assets/Current Liabilities, (ii) Quick ratio = (Current Assets - Inventories)/ Current Liabilities, (iii) Times-Interest-
An Examination of the Liquidity of Firms Around a Financial Crisis

Earned = Operating Income / Interest, (iv) Collection period = Accounts Receivable / (Sales / 365), and, (v) Inventory turnover = Cost Of Goods Sold / Inventories.

These ratios capture the different aspects of a firm’s liquidity. The first two ratios, the current ratio and the quick ratio capture the short-term solvency of the firm. The ability of the firm to meet its immediate liabilities is of tremendous importance in a financial crisis where rotation of credit, including trade credit may be constrained. The third ratio, times-interest-earned (TIE) ratio captures the firm’s ability to meet its interest obligations. Interest obligation is not a part of the current liabilities covered in the first two ratios, but a failure to meet interest obligation can trigger debt covenants and other negative processes like downgrading of credit rating. The fourth ratio, collection period targets an important aspect—credit collection—of a firm’s liquidity policy. The amount of accounts receivables of a firm is subject to industry and market conditions. A financial crisis does affect the flow of credit, and a significant change in accounts receivables collection can cause a disruption in the liquidity management and operations of the firm. The final ratio, the inventory turnover ratio captures inventory management by a firm. Most financial crisis lead to an increase in inventories that further leads to price wars and other events that affect the operations, liquidity and profitability of firms.

The sample period (1994-2004) is divided into five sub-periods: 1994-1996 (the pre-crisis period), 1997 (the crisis year), 1998 (the short-term post-crisis period), 1999-2001 (the medium term post-crisis period), and 2002-2004 (the long-term post-crisis period). Table 1 shows the sample distribution of the firms in the sample by five sub-periods.

Table 1: Sample Distribution

<table>
<thead>
<tr>
<th></th>
<th>Indonesia</th>
<th>Korea</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-crisis (1994-96)</td>
<td>213</td>
<td>49</td>
<td>460</td>
</tr>
<tr>
<td>Crisis (1997)</td>
<td>156</td>
<td>87</td>
<td>275</td>
</tr>
<tr>
<td>ST reaction (1998)</td>
<td>178</td>
<td>113</td>
<td>278</td>
</tr>
<tr>
<td>MT reaction (1999-01)</td>
<td>569</td>
<td>594</td>
<td>798</td>
</tr>
<tr>
<td>LT reaction (2002-04)</td>
<td>623</td>
<td>659</td>
<td>811</td>
</tr>
</tbody>
</table>

Each of the liquidity ratios is examined by comparing the ratio for the crisis period to the ratio for the pre-crisis period, the short-term crisis period to the ratio for the pre-crisis period, the medium-term crisis period to the ratio for the pre-crisis period, and the long-term crisis period to the ratio for the pre-crisis period. While it may be expected that all the liquidity ratios would deteriorate during the crisis period, this type of analysis allows the examination of the conjecture that hopefully firms would learn from their experience and adopt ‘safer’ liquidity policies, as compared to their pre-crisis policies, as soon as market conditions allow them to take control of their own policies again.

Therefore, the null hypothesis related to the liquidity policy of sample firms is:

\( H_0 (1): \) The liquidity policy of firms does not change in the three post-crisis periods as compared to pre-crisis values.

Acceptance of \( H_0 (1) \) implies that the liquidity of the firms does not change in the crisis year, the short run, the medium run or the long run as compared to the pre-crisis period. Failure to accept \( H_0 (1) \) in the crisis period implies that firms adjust their liquidity policy during the crisis period to respond to the
financial crisis in the country. Failure to accept $H_0$ (1) in the short run implies that firms adjust their liquidity policy in the immediate post-crisis period. Failure to accept $H_0$ (1) in the medium run, may imply that firms take longer to adjust their liquidity policy to respond to the financial crisis in the country (especially if they have not adjusted during the short run) or that firms retain their adjusted liquidity policy (if they have already adjusted in the short run). Failure to accept $H_0$ (1) in the long run, implies that firms retain their adjusted liquidity policy (if they have already adjusted in the short run or medium run).

Further, each of the liquidity ratio is examined by comparing the ratio for the medium term post-crisis period to the ratio for the short-term post-crisis period (the immediate post-crisis period), and, the long-term crisis period to the ratio for the short-term post-crisis period (the immediate post-crisis period). As mentioned earlier, while it may be expected that all the liquidity ratios would deteriorate during the crisis period, this type of analysis allow the examination of the speed or time taken to recover from the liquidity crunch in the post crisis period.

Therefore, the null hypothesis related to the liquidity policy of sample firms is:

$H_0$ (2): The liquidity policy of firms remains the same over the medium-term and the long-term after the crisis, as compared to the immediate post-crisis period.

Acceptance of $H_0$ (2) implies that the liquidity policy of firms does not change in the medium run or the long run as compared to the short run post-crisis period. Failure to accept $H_0$ (2), in the medium run, may imply that firms take longer to adjust their liquidity policy to respond to the financial crisis in the country (especially if they have not adjusted during the short run) or that firms retain their adjusted liquidity policy (if they have already adjusted in the short run). Failure to accept $H_0$ (2), in the long run, implies that firms retain their adjusted liquidity policy (if they have already adjusted in the short run or medium run).

In order to eliminate the effects of extreme outliers, the data is Winsorized at the one percent level. The statistical significance in the difference of means is tested using the two-tailed t test. Significance of difference in the medians of ratios is calculated using the Wilcoxon Signed Rank Sum test.

**DISCUSSION OF RESULTS**

Tables 2 to 6 provide the results of analysis for the six liquidity ratios used in this study. These tables present the results of comparisons of the ratio in post-crisis periods to those in the pre-crisis period. Table 2 provides an analysis of the current ratio, Table 3 provides an analysis of the quick ratio, Table 4 provides an analysis of the times interest earned ratio, Table 5 presents an analysis of the collection period, and Table 6 presents an analysis of inventory turnover. In each of these tables, Panel A shows a graphical presentation of the mean ratio analyzed in the table by country for the five time-periods in the study, Panel B presents the number of firms, mean ratio value, and median ratio value for firms in the three sample countries for the five time periods. Panel B also provides results of univariate tests of significance for changes in the liquidity ratios due to the financial crisis. The results presented in these tables compare the pre-crisis values with the values in other four time-periods (crisis, short-term reaction, medium term reaction, and long-term reaction).

Table 2 results show that the mean current ratio had significant changes for all three countries included in the sample. Panel B in Table 2 shows that for Indonesia and Thailand the mean and the median
current ratio declined immediately during the crisis period. The mean and the median in Indonesia and the median ratio in Thailand remained significantly depressed in the short-term. In the medium term, the mean current ratio in Indonesia remained depressed, but interestingly, the mean ratio in Korea and Thailand increased significantly above the pre-crisis levels. These improvements in current ratio were sustained during the long-term in these countries. The mean current ratio in Indonesia, which had the highest value in the pre-crisis period among the three sample countries, recovered in the long-term to the pre-crisis level but was not significantly higher, as observed in Korea and Thailand. In Korea and Thailand, both the mean and the median current ratios were significantly higher in the long-term compared to pre-crisis levels.

Table 2: Current Ratio

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-crisis</th>
<th>Crisis</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N 213</td>
<td>156</td>
<td>178</td>
<td>569</td>
<td>623</td>
</tr>
<tr>
<td></td>
<td>Mean 1.981</td>
<td>1.409***</td>
<td>1.269***</td>
<td>1.699**</td>
<td>2.084</td>
</tr>
<tr>
<td></td>
<td>Median 1.637</td>
<td>1.117***</td>
<td>0.826***</td>
<td>1.196***</td>
<td>1.516***</td>
</tr>
<tr>
<td>Korea</td>
<td>N 49</td>
<td>87</td>
<td>113</td>
<td>594</td>
<td>659</td>
</tr>
<tr>
<td></td>
<td>Mean 1.116</td>
<td>1.051</td>
<td>1.322</td>
<td>1.506***</td>
<td>1.812***</td>
</tr>
<tr>
<td></td>
<td>Median 1.086</td>
<td>0.937</td>
<td>1.018</td>
<td>1.032</td>
<td>1.232***</td>
</tr>
<tr>
<td>Thailand</td>
<td>N 460</td>
<td>275</td>
<td>278</td>
<td>798</td>
<td>811</td>
</tr>
<tr>
<td></td>
<td>Mean 1.399</td>
<td>1.193**</td>
<td>1.257</td>
<td>1.714***</td>
<td>1.985***</td>
</tr>
<tr>
<td></td>
<td>Median 1.142</td>
<td>0.904***</td>
<td>0.830***</td>
<td>1.19</td>
<td>1.411***</td>
</tr>
</tbody>
</table>

Notes:
(i) Current ratio = Current Assets / Current Liabilities
(ii) Significance of difference in means and medians is calculated using the two-tailed t-test and Wilcoxon Signed Rank Sum Test, respectively.
(iii) *, **, and *** mean significantly different from the pre-crisis value at 10%, 5%, and 1% level respectively.

Table 3 shows the results for the tests for changes in the quick ratio and shows a pattern very similar to the one observed in the behavior of current ratio in the post-crisis era. Quick ratios in Indonesia and Thailand fell immediately because of the crisis. The mean and the median ratio in Indonesia remained significantly below the pre-crisis level through the medium term; and while the mean ratio recovered to the pre-crisis levels, the median ratio remained depressed in the long term. In Korea, the quick ratio was not affected by the financial crisis and the mean ratio was significantly higher than the pre-crisis levels in the medium term and long term, with both mean and median being significantly higher in the long term. Quick ratio in Thailand responded in a manner very similar to Korea. After initial fall in the median values, the ratio rose to beyond pre-crisis levels in the medium and long term, and mean and median ratio was significantly higher in the long run.
Table 3: Quick Ratio

Panel A:

<table>
<thead>
<tr>
<th></th>
<th>pre-crisis</th>
<th>crisis</th>
<th>st-reaction</th>
<th>mt-reaction</th>
<th>lt-reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N</td>
<td>213</td>
<td>156</td>
<td>178</td>
<td>569</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>1.442</td>
<td>0.972***</td>
<td>0.87***</td>
<td>1.114***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1.142</td>
<td>0.748***</td>
<td>0.483***</td>
<td>0.711***</td>
</tr>
<tr>
<td>Korea</td>
<td>N</td>
<td>49</td>
<td>87</td>
<td>113</td>
<td>594</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>0.898</td>
<td>0.84</td>
<td>1.019</td>
<td>1.156***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.825</td>
<td>0.737</td>
<td>0.801</td>
<td>0.785</td>
</tr>
<tr>
<td>Thailand</td>
<td>N</td>
<td>460</td>
<td>275</td>
<td>278</td>
<td>798</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>0.967</td>
<td>0.829*</td>
<td>0.846</td>
<td>1.138**</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.709</td>
<td>0.544***</td>
<td>0.527***</td>
<td>0.707</td>
</tr>
</tbody>
</table>

Panel B: Comparison with the pre-crisis value

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-crisis</th>
<th>Crisis</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N</td>
<td>213</td>
<td>156</td>
<td>178</td>
<td>569</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>1.442</td>
<td>0.972***</td>
<td>0.87***</td>
<td>1.114***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1.142</td>
<td>0.748***</td>
<td>0.483***</td>
<td>0.711***</td>
</tr>
<tr>
<td>Korea</td>
<td>N</td>
<td>49</td>
<td>87</td>
<td>113</td>
<td>594</td>
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<tr>
<td></td>
<td>Mean</td>
<td>0.898</td>
<td>0.84</td>
<td>1.019</td>
<td>1.156***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.825</td>
<td>0.737</td>
<td>0.801</td>
<td>0.785</td>
</tr>
<tr>
<td>Thailand</td>
<td>N</td>
<td>460</td>
<td>275</td>
<td>278</td>
<td>798</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>0.967</td>
<td>0.829*</td>
<td>0.846</td>
<td>1.138**</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.709</td>
<td>0.544***</td>
<td>0.527***</td>
<td>0.707</td>
</tr>
</tbody>
</table>

Notes:
(i) Quick ratio = (Current Assets – Inventories) / Current Liabilities
(ii) Significance of difference in means and medians is calculated using the two-tailed t-test and Wilcoxon Signed Rank Sum Test, respectively.
(iii) *, **, and *** mean significantly different from the pre-crisis value at 10%, 5%, and 1% level respectively.

Results for the test of significance for changes in the times-interest-earned ratio in Table 4 show some interesting characteristics of firm response. During the crisis period and in the short-term period following the crisis, there were little significant changes in any of the sample countries—only the median ratio in Indonesia and Thailand declined. In contrast, the mean ratio was significantly higher in all sample countries in the medium-term and long-term periods following the financial crisis. Interestingly, contrary to the behavior of the mean ratio, the median ratio in Indonesia remained depressed in the long term while that in Korea and Thailand was in line with changes in the mean ratio and was significantly higher. These results suggest that interest charges dropped in the long-term period following the financial crisis due to possible tightening of the credit markets, and warrant further research in this area.

Table 5 shows the results of tests of significant differences during the selected time intervals in the collection period in the sample countries. While there were no significant changes in collection terms in Korea, results for Indonesia and Thailand point to the tightening of the credit markets. In Indonesia, the collection period rose significantly in the crisis period indicating difficulty in meeting payment terms. The mean and the median collection period in Indonesia and Thailand were significantly lower in the long-term period following the crisis. Again, as in the times-interest-ratio, these results suggest that credit markets became tighter in the long-term and payment terms were reduced.
Table 4: Times-Interest-Earned

Panel A:

![Graph showing Times-Interest-Earned for different countries]

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-crisis</th>
<th>Crisis</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N</td>
<td>213</td>
<td>156</td>
<td>178</td>
<td>569</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>10.632</td>
<td>7.353</td>
<td>19.000</td>
<td>27.950*</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>3.130</td>
<td>1.858***</td>
<td>1.116***</td>
<td>1.455***</td>
</tr>
<tr>
<td>Korea</td>
<td>N</td>
<td>49</td>
<td>87</td>
<td>113</td>
<td>594</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>5.912</td>
<td>3.961</td>
<td>4.603</td>
<td>38.684***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1.030</td>
<td>1.401</td>
<td>0.994</td>
<td>1.736*</td>
</tr>
<tr>
<td>Thailand</td>
<td>N</td>
<td>460</td>
<td>275</td>
<td>278</td>
<td>798</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>21.681</td>
<td>42.708</td>
<td>47.052</td>
<td>91.979***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>2.115</td>
<td>1.206***</td>
<td>0.502***</td>
<td>1.507**</td>
</tr>
</tbody>
</table>

Panel B: Comparison with the pre-crisis value

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-crisis</th>
<th>Crisis</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N</td>
<td>213</td>
<td>156</td>
<td>178</td>
<td>569</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>10.632</td>
<td>7.353</td>
<td>19.000</td>
<td>27.950*</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>3.130</td>
<td>1.858***</td>
<td>1.116***</td>
<td>1.455***</td>
</tr>
<tr>
<td>Korea</td>
<td>N</td>
<td>49</td>
<td>87</td>
<td>113</td>
<td>594</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>5.912</td>
<td>3.961</td>
<td>4.603</td>
<td>38.684***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1.030</td>
<td>1.401</td>
<td>0.994</td>
<td>1.736*</td>
</tr>
<tr>
<td>Thailand</td>
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<td>275</td>
<td>278</td>
<td>798</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>21.681</td>
<td>42.708</td>
<td>47.052</td>
<td>91.979***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>2.115</td>
<td>1.206***</td>
<td>0.502***</td>
<td>1.507**</td>
</tr>
</tbody>
</table>

Notes:
(i) Times-Interest-Earned = Operating Income / Interest
(ii) Significance of difference in means and medians is calculated using the two-tailed t-test and Wilcoxon Signed Rank Sum Test, respectively.
(iii) *, **, and *** mean significantly different from the pre-crisis value at 10%, 5%, and 1% level respectively.
Table 5: 

**Panel A:**

<table>
<thead>
<tr>
<th>Period</th>
<th>IDN</th>
<th>KOR</th>
<th>THA</th>
</tr>
</thead>
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<tr>
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</tr>
<tr>
<td>0</td>
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</tbody>
</table>

**Panel B: Comparison with the pre-crisis value**

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-crisis Mean</th>
<th>Crisis Mean</th>
<th>Short-term Relation Mean</th>
<th>Medium-term Reaction Mean</th>
<th>Long-term Reaction Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>100.93</td>
<td>135.847***</td>
<td>95.65</td>
<td>72.26***</td>
<td>67.042***</td>
</tr>
<tr>
<td>Korea</td>
<td>85.28</td>
<td>98.115</td>
<td>87.465</td>
<td>78.514</td>
<td>67.733</td>
</tr>
<tr>
<td>Thailand</td>
<td>108.652</td>
<td>107.524</td>
<td>93.278**</td>
<td>77.253***</td>
<td>66.532***</td>
</tr>
</tbody>
</table>

Notes:

(i) Collection Period = Accounts Receivables / (Sales/365)

(ii) Significance of difference in means and medians is calculated using the two-tailed t-test and Wilcoxon Signed Rank Sum Test, respectively.

(iii) *, **, and *** mean significantly different from the pre-crisis value at 10%, 5%, and 1% level respectively.

Table 6 shows the results of tests for the inventory turnover ratio in the sample countries. Again, there were no significant changes in Korea, with the exception of decline in inventory turnover in the medium term, which recovered back to the pre-crisis levels in the long term. In contrast, in Indonesia and Thailand, the mean and median inventory turnover rose significantly in the long-term period. The median values for Thailand were significantly higher in the short-term and long-term period following the crisis and the mean and median for Indonesia was also higher in the medium term. These results suggest that firms in Indonesia and Thailand reduced inventory turnover in the medium- and long-term post-crisis periods. This increase may be linked to reduced inventories due to tight credit, and warrants future research.
An Examination of the Liquidity of Firms Around a Financial Crisis

Table 6: Inventory Turnover

Panel A:

![Inventory Turnover graph]

Panel B: Comparison with the pre-crisis value

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-crisis</th>
<th>Crisis</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N</td>
<td>213</td>
<td>156</td>
<td>178</td>
<td>569</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>5.223</td>
<td>4.644</td>
<td>5.797</td>
<td>11.456***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>3.402</td>
<td>2.635***</td>
<td>3.343</td>
<td>4.046***</td>
</tr>
<tr>
<td>Korea</td>
<td>N</td>
<td>49</td>
<td>87</td>
<td>113</td>
<td>594</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>41.319</td>
<td>21.462</td>
<td>23.019</td>
<td>18.639*</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>9.948</td>
<td>7.558</td>
<td>8.405</td>
<td>7.425</td>
</tr>
<tr>
<td>Thailand</td>
<td>N</td>
<td>460</td>
<td>275</td>
<td>278</td>
<td>798</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>3.883</td>
<td>4.164</td>
<td>4.809***</td>
<td>4.996***</td>
</tr>
</tbody>
</table>

Notes:
(i) Inventory Turnover = Cost of goods sold/Inventory
(ii) Significance of difference in means and medians is calculated using the two-tailed t-test and Wilcoxon Signed Rank Sum Test, respectively.
(iii) *, **, and *** mean significantly different from the pre-crisis value at 10%, 5%, and 1% level respectively.

In addition to studying the changes in the liquidity ratios in comparison to pre-crisis values in the sample countries, this study also looked at how firms adjusted their short-term reaction to the crisis in the medium- and the long-term periods.

The results of this analysis are presented in Table 7, which shows the results of test of significance for differences in the mean and median values of each liquidity ratio in the short-term reaction period compared to that in the medium-term and the long-term reaction periods. In this table, Panel A presents comparison for the gross profit margin ratio, Panel B presents comparison of the net profit margin ratio, Panel C presents comparison of the basic earning power ratio, and Panel D presents comparison of the return-on-assets ratio. The results show that with the exception of times-interest-earned ratio in Indonesia and inventory turnover ratio in Korea, the mean and the median liquidity ratios included in this study were significantly different in the long-term from the corresponding values after the short-term reaction to the crisis.

In all countries, the current ratio and the quick ratio climbed in the long-term period indicating that firms became more conservative in the long term as a result of their experiences during the financial crisis. Similarly, for all significant results, the times-interest-earned, and the inventory turnover went up while the collection period declined. A credit crunch following the financial crisis will reduce current liabilities,
make firms more careful in inventory purchases, and accelerate collection efforts. Thus, reduction in the availability of credit in the post-crisis era could offer a possible explanation of the observed results. A future study to explore this phenomenon in more depth is warranted.

Table 7: Comparison with the short-term reaction value

Panel A: Current Ratio

<table>
<thead>
<tr>
<th>Country</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N 178</td>
<td>569</td>
<td>623</td>
</tr>
<tr>
<td>Mean 1.269</td>
<td>1.699***</td>
<td>2.084***</td>
<td></td>
</tr>
<tr>
<td>Median 0.826</td>
<td>1.196***</td>
<td>1.516***</td>
<td></td>
</tr>
</tbody>
</table>

| Korea | N 113 | 594 | 659 |
| Mean 1.322 | 1.506 | 1.812*** |
| Median 1.018 | 1.032 | 1.232*** |

| Thailand | N 278 | 798 | 811 |
| Mean 1.257 | 1.714*** | 1.985*** |
| Median 0.830 | 1.19*** | 1.411*** |

Panel B: Quick Ratio

<table>
<thead>
<tr>
<th>Country</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N 178</td>
<td>569</td>
<td>623</td>
</tr>
<tr>
<td>Mean 0.870</td>
<td>1.114**</td>
<td>1.372***</td>
<td></td>
</tr>
<tr>
<td>Median 0.483</td>
<td>0.711**</td>
<td>0.889***</td>
<td></td>
</tr>
</tbody>
</table>

| Korea | N 113 | 594 | 659 |
| Mean 1.019 | 1.156 | 1.433*** |
| Median 0.801 | 0.785 | 0.942*** |

| Thailand | N 278 | 798 | 811 |
| Mean 0.846 | 1.138*** | 1.329*** |
| Median 0.527 | 0.707*** | 0.881*** |

Panel C: Times-Interest-Earned

<table>
<thead>
<tr>
<th>Country</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>N 178</td>
<td>569</td>
<td>623</td>
</tr>
<tr>
<td>Mean 19.000</td>
<td>27.950</td>
<td>37.154</td>
<td></td>
</tr>
<tr>
<td>Median 1.116</td>
<td>1.455**</td>
<td>1.312</td>
<td></td>
</tr>
</tbody>
</table>

| Korea | N 113 | 594 | 659 |
| Mean 4.603 | 38.684*** | 73.958*** |
| Median 0.994 | 1.736*** | 4.523*** |

| Thailand | N 278 | 798 | 811 |
| Mean 47.052 | 91.979* | 146.388*** |
| Median 0.502 | 1.507*** | 4.422*** |
An Examination of the Liquidity of Firms Around a Financial Crisis

Panel D: Collection Period

<table>
<thead>
<tr>
<th>Country</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>178</td>
<td>569</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Mean</td>
<td>95.65</td>
<td>72.26***</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Median</td>
<td>64.355</td>
<td>51.255***</td>
</tr>
<tr>
<td>Korea</td>
<td>N</td>
<td>113</td>
<td>594</td>
</tr>
<tr>
<td>Korea</td>
<td>Mean</td>
<td>87.465</td>
<td>78.514</td>
</tr>
<tr>
<td>Korea</td>
<td>Median</td>
<td>66.245</td>
<td>61.529</td>
</tr>
<tr>
<td>Thailand</td>
<td>N</td>
<td>278</td>
<td>798</td>
</tr>
<tr>
<td>Thailand</td>
<td>Mean</td>
<td>93.278</td>
<td>77.253**</td>
</tr>
<tr>
<td>Thailand</td>
<td>Median</td>
<td>64.124</td>
<td>59.681*</td>
</tr>
</tbody>
</table>

Panel E: Inventory Turnover

<table>
<thead>
<tr>
<th>Country</th>
<th>Short-term Reaction</th>
<th>Medium-term Reaction</th>
<th>Long-term Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>178</td>
<td>569</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Mean</td>
<td>5.797</td>
<td>11.456***</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Median</td>
<td>3.343</td>
<td>4.046***</td>
</tr>
<tr>
<td>Korea</td>
<td>N</td>
<td>113</td>
<td>594</td>
</tr>
<tr>
<td>Korea</td>
<td>Mean</td>
<td>23.019</td>
<td>18.639</td>
</tr>
<tr>
<td>Korea</td>
<td>Median</td>
<td>8.405</td>
<td>7.425</td>
</tr>
<tr>
<td>Thailand</td>
<td>N</td>
<td>278</td>
<td>798</td>
</tr>
<tr>
<td>Thailand</td>
<td>Mean</td>
<td>9.881</td>
<td>10.335</td>
</tr>
<tr>
<td>Thailand</td>
<td>Median</td>
<td>4.809</td>
<td>4.996</td>
</tr>
</tbody>
</table>

Notes:
(i) Significance of difference in means and medians is calculated using the two-tailed t-test and Wilcoxon Signed Rank Sum Test, respectively.
(ii) *, **, and *** mean significantly different from the pre-crisis value at 10%, 5%, and 1% level respectively.

CONCLUSIONS

This paper is expected to contribute to the literature by showing how the financial crisis led to changes in the liquidity structure of Asian firms. The results show that firms in different countries reacted similarly, though the levels of reaction were different and so were the times involved in the reaction, to the financial crises in their countries. This is in line with the Prasad et al (2006) and Prasad et al (2009) studies that found evidence of a country effect in their studies of capital structure/financing structure in Asia. Aziz (2008) also observes that recovery in Indonesia is the slowest amongst the countries that faced a crisis. This study also finds a similar slowness related to some of the liquidity measures. It is interesting to note the changes at the firm level in reaction to the crisis with the deterioration in liquidity. Further changes are observed as the crisis eased that suggest that firms have adopted safer ‘liquidity’ policies in the longer run rather than returning to their old ways.

Panel A’s of Tables 2 to 6 show an apparent convergence in the aggregate liquidity policies by firms in the countries studied. The Prasad et al (2006) study also suggests a similar possibility with regard to capital structure. Thus, further research is suggested for a formal testing of convergence. Further, in future research, an examination of the changes in profitability of firms may suggest the time required for firms to recover from a financial crisis and start growing profitable again.

Possibly many of the economic, social and financial problems relating to the current global crisis could have been avoided if early warning signals had been in place and lessons had been learnt from the
past financial crises. Though this studies does find that firms appear to adopt ‘safer’ policies in the longer run, may be these lessons were forgotten again as time passed by. Only future studies of the current crisis will tell.

REFERENCES

CONSUMERS’ INTENT TO PURCHASE NICHE APPAREL ONLINE: A CONCEPTUAL MODEL

Alma Mintu-Wimsatt and Chris Myers
Texas A & M University – Commerce

ABSTRACT
Two trends in the apparel industry are noteworthy. First, the apparel industry is experiencing sales levels reaching a plateau. As a result, apparel companies are now focusing marketing efforts on niche markets as a means to counter industry sales trends. Second, sales of apparel products via the Internet are expected to grow. Consequently, it can be expected that sales of niche apparel products via the Internet is also expected to grow. Given these 2 trends, this paper presents a conceptual model on what factors are expected to influence consumers’ intent to purchase niche apparel products online. The proposed model focuses on consumer experience as well as attitudes and their impact on purchase intentions.

Keywords: Niche Apparel, Internet, Experience, Attitudes, Purchase Intentions

INTRODUCTION
As traditional apparel retailing becomes increasing competitive and sales levels remain stagnant, marketers are exploring non-traditional means to reach their target markets. The growth of online retailing has provided the apparel industry with additional avenues to reach the consumer. Studies have touted the growth of on-line shopping and the growing purchases of those with Internet access (Yoh et al., 2003). In fact, apparel products have been consistently ranked as one of the most frequently purchased items through the Internet (Seckler, 2001).

In addition of Internet retailing, apparel customization has also become another means to effectively provide some spike when sales levels off. Apparel customization requires manufacturers and retailers to create and develop specific products for niche categories. These niche product categories or sub-categories offer many unique growth opportunities and strategies for a mature market like the apparel industry (Parrish et al., 2006b).

Since the online retailing trend is expected to continue in the coming years and customized apparel growth is becoming more evident, it would be interesting to examine consumer behavior within the contexts of Internet shopping and niche apparel products. That is, what factors affect shoppers’ intent to purchase niche apparel products via the Internet?
EXPLORING INTERNET SHOPPING FOR A NICHE APPAREL MARKET

Apparel Shopping and the Internet

The apparel industry, particularly in the United States, can be characterized as a mature market severely faced with intense competition from domestic and foreign companies (Parrish et al., 2006a). As a result, apparel companies have employed niche marketing strategies to help direct their business.

According to Kotler (2003), niche markets focus on a narrow group of consumers with distinct needs. Often, these needs are addressed through specialized product offerings. As a result, distinct marketing programs are presented to accommodate the specific needs of a sub-segment (Linneman & Stanton, 1992).

A plethora of research studies have been conducted on the consumer profiles of general Internet shoppers. For example, Donthu and Garcia (1999) and Swaminathan et al. (1999) analyzed unique characteristics of Internet shoppers and non-shoppers. However, research on Internet shopping specifically on niche markets has been sporadic. This gap in the literature is unfortunate given that Parrish et al. (2006a) have found that the key to the success of niche apparel firms lies in the understanding of the consumer. This study explores the behavior patterns of consumers in the hospital gown market.

PROPOSED HYPOTHESES

Yoh et al. (2003) proposed that psychological factors such as attitudes; social normative factors; and prior experience explain consumers’ intention to purchase apparel products via the Internet. They suggest that behavior intentions are driven by two underlying determinants: (1) attitude toward the object or behavior such as Internet shopping, and (2) an individual’s perception of normative social pressure to perform or not perform the particular behavior. This is consistent with Fishbein and Ajzen’s (1975) Theory of Reasoned Action. Additionally, Yoh et al. (2003) also utilized Roger’s (1995) Theory of Innovation Adoption in their model. Prior experience with an innovation is essential in building how-to knowledge and enhancing trialability as well as observability of the innovation. Therefore, prior experience is important in the knowledge and early persuasion stages in the product adoption process.

**Attitudes.** There have been many ways of conceptualizing attitudes. Attitude, in the extant literature, generally focuses on a predisposition to respond favorably or unfavorably to an object, event or other aspect of one’s surroundings (Ajzen 1988). Kwon et al. (1991) and Schmid (1999) found that individuals tend to have favorable thoughts and actions toward objects with which they have knowledge and involvement, and this is true of Internet apparel shopping (Yoh et al, 2003). The levels of knowledge and involvement would easily extend to attitudes regarding the niche apparel industry for hospital gowns because these garments have minimal changes over a long period of time. Therefore, it would be reasonable to expect that a consumer who has positive attitudes towards Internet apparel shopping will have similar attitudes towards niche apparel shopping. As a result, we propose that:

**H1:** A positive relationship exists between attitude toward Internet apparel shopping and attitude toward Internet niche apparel shopping.

**Prior Experience.** Prior experience relates to the compatibility of an innovation and the attainment of the appropriate knowledge and skill (Tomatzky & Klein, 1982). Due to the strong history of mail order
Consumers’ Intent to Purchase Niche Apparel Online: A Conceptual Model

sales (Schmid, 1999), the transition from other shopping methods such as catalog and network to the Internet has been relatively smooth (Lohse et al., 2000). As a result, consumers’ previous non-store retailing experience as well as their receptiveness for Internet apparel shopping will probably carry over to their attitudes toward niche apparels.

H2: A positive relationship exists between prior Internet shopping experience and attitude toward Internet niche apparel shopping.

Purchase Intentions. The purchase intentions or trialability of an innovation is related positively to its rate of adoption or prior experience. Several authors have suggested that innovations, such as Internet purchase intentions for niche apparel, will be adopted and implemented more often and more quickly if it can be tried on ways or traditions in which the consumer is accustomed (He et al., 2006). Internet retailers have attempted to make this possible as evidenced by the similarities between at-home (e.g., catalog and network) shopping methods and Internet shopping methods (O’Cass and Fenech, 2003). Given the recent changes in the marketplace, we hypothesize that:

H3: A positive relationship exists between attitude toward Internet niche apparel shopping and Internet purchase intentions for niche apparel.

Similar to Yoh et al.’s (2003) study, we suggest that within the context of the niche apparel industry of hospital gowns, attitudinal and experience variables will have a positive influence on purchase intentions. However, we somewhat deviate from Yoh’s (et al. 2003) model and contend that in some niche product categories, such as hospital gowns, there is little or no social pressure involved in the decision process for consumers for these products (Kotler, 2003). There is minimal social pressure but a conscious effort to find or satisfy an internal motivation, not social acceptance or status, but uniqueness or individualism. Because consumers in niche markets have a distinct set of needs, they may be more willing to pay a premium price to the firm that best satisfies those distinct set of needs (Kotler 2003).

H4: Prior Internet experience and attitude toward Internet niche apparel shopping will have a positive influence on Internet purchase intentions for niche apparel.

CONCLUSION

The trends in the market place reinforce the importance of proposing a model on factors influencing consumers’ purchase intentions of niche apparel products. This model can then serve as a springboard for empirically testing the proposed hypotheses as well as fill in some of the gaps in the extant literature.

REFERENCES


MIGRATION AND DEMAND FOR NEW HOUSING IN ALABAMA MSAS

John M. Kagochi¹ and Lesley M. Mace²
University of Houston-Victoria, USA¹ and Auburn University Montgomery, USA²

ABSTRACT
Several studies have looked at how economic and demographic factors affecting housing demand. However, although the demand for housing is unique and mostly local, few studies have looked at the relationship between net migration and demand for new housing at the local level. This study extends previous research by examining the effect of net migration on the demand for new housing at Metropolitan Statistical Areas (MSAs) level in the State of Alabama. We use time series data and apply Dynamic Ordinary Least Squares (DOLS) regression. The study finds that demand for new housing in Alabama MSAs is influenced by net migration and other local factors such as building costs and unemployment; and national economic factors, such as mortgage interest rates.

Keywords: Migration, Housing Demand, Alabama MSA, Housing Markets

INTRODUCTION
Demand and supply for new housing is influenced by several factors that can either be demographic or economic in nature. The interactions of the construction sector (the supply side) with households (the demand side) determine prices and quantities in housing markets. Key variables governing the supply of new housing include prices, the costs of construction materials and land, the cost of financing, and the amount of undepreciated housing stock. Similarly, key variables governing the quantity of housing include prices, the level of mortgage rates, expectations of permanent income or wealth, rates of return on other investments, and demographic factors that influence the decision to buy a house (Krainer, 2005).

Some of the demographic factors that influence demand for new housing include population migration, the changing age structure of the population, and the composition of households. For example, increases in the number of separations and divorces could result in an increase in the formation of new households, while increases in the number of children per family could influence the type of housing required (BC Stats, 2000). These demographic and economic factors also influence both the type of housing demanded and household size, and consequently vary considerably across different regions of even the same state.

Several studies, for example, Marcin and Kokus (1975) have looked at economic and demographic factors affecting housing demand in the US. However, few studies have looked at the relationship between migration and demand for new housing at the Metropolitan Statistical Areas (MSAs) level. As noted by Kottis (1971), housing is an extremely heterogeneous good and the housing market is a composite of a large number of smaller markets specializing in different types of housing that are
subject to different supply and demand conditions. The demand for housing is therefore very unique when compared to demand for other commodities. Since we cannot move houses from one locality to another even after demand changes, this study argues that demand for housing will always be local and therefore influenced mostly by local conditions. A study of how net migration influences the demand for housing at the local level will therefore gain a better understanding of the local interaction of migration and the demand for new housing, as compared to studies that look at housing demand at the state or national level.

The objectives of the study are (1) develop a model for new housing in Alabama MSAs, (2) evaluate the influence of migration on the demand for new housing in Alabama MSAs, and (3) discuss the policy implications. The results of the study should provide useful information to local governments and stakeholders in the housing sector on the impact of population changes (migration) on the demand for new housing in Alabama MSAs. The rest of the study has six sections which are migration and housing, description of Alabama MSAs, determinants of housing demand, data and models, results and discussions, and summary and conclusion including policy recommendations.

**Migration and Housing Demand**

Several studies have looked at the impact of migration on the housing market. However, most of the literature is dominated by studies that look at the impact on local rental prices in the US with the assumption that predominantly low-skilled US immigrants tend to live in rented accommodation. In general, these studies have found that immigration has a positive effect on rental prices (Stillman and Maré, 2008).

A study done by Saiz (2003) that examined the 1980 “Mariel boatlift” found out that the Cuban immigrants added 9% more individuals to Miami's renter population. He also found that rental prices increased by 8%, with smaller increases for top-end rental units, and a slight decline in house sales prices. In another study that examined the annual and decennial immigration flows and rental price changes in metropolitan areas Saiz (2007) found a similar elasticity, with a 1% increase in population due to immigrants resulting in a 1% increase in rental prices. Another study done by Ottaviano and Peri (2007) estimated the impacts of immigrants on wages and rents and found a slightly lower elasticity of 0.6 to 0.8 for the housing rents.

Coleman and Landon-Lane (2007) note that if the migrants moving to a locality are wealthier than the host population, there may be a genuine housing shortage in the short term as the construction sector takes time to build suitable accommodation since the new migrants purchase high quality properties that have inelastic supply or take a long time to build.

According to Mulder (2006), the relationship between population and housing is two-sided. On the one hand, population changes particularly the growth in the number of households lead to a growth in housing demand. Also, population decline might lead to a decrease in housing demand in the long run. But at the same time, the supply of housing influences the opportunities for population increase through immigration and the opportunities for people to form new households. Housing supply may also play a decisive part in leaving the parental home and the formation of married and unmarried union, and might play a part in the timing of fertility or the number of children people have. Thus, while housing may attract migrants or prevent out-migration and a lack of housing may prevent migrants from entering or lead to out-migration.
As noted by Kottis (1971), the impact of migration on housing may be discussed meaningfully in terms of supply and demand. While the demand for new housing is affected by a host of economic, social and demographic factors; the paper assumes, for simplicity, that housing is a homogenous good and the immediate effect of positive net migration to an area is to increase the population and the demand of housing services. The paper therefore examines only the effect of migration on the demand for new houses in Alabama MSAs. A brief description of Alabama MSAs and theoretical discussion of the relationships studied precedes the empirical analysis.

**Alabama Metropolitan Statistical Areas (MSAs)**

The State of Alabama has 12 MSAs namely Anniston, Auburn/Opelika, Birmingham, Phenix City, Decatur, Dothan, Florence, Gadsden, Huntsville, Mobile, Montgomery, and Tuscaloosa. Alabama has historically been a state where population is concentrated in metropolitan areas, with metropolitan counties housing 71.2% of the state’s population in 2006, up 1.1% from 2000. Alabama has been characterized as a state of “few large cities and many small cities and towns.” Only eleven counties have cities of 25,000 or more. Jobs in Alabama are located around MSAs and in 2006 over 76% of nonagricultural employment were located in the 28 counties that make up the 11 metro areas (Trent, 2007).

In 2006 Alabama had 2,110,154 Census housing units, while the 2000 Census data reported a homeownership rate of 72.5%, which is nearly 10% above the national average. According to the Census data projections, the median value of Alabama homes in 2000 was $85,100, well below the national median of $119,600.

Between 1940 and 1970 Alabama lost almost a million residents, mainly as a result of the black migration to the East and Midwest in search of employment (Advameg, 2008). However, Alabama saw a net population gain of over 100,000 in the two decades following 1970s, and a population increase of 10% between 1990 and 2000. More than 40% of the growth in the 1990s was due to net migration, with a gain of nearly 90,000 more people moving to the state than leaving the state. Only during these two decades in the last century did Alabama see positive net migration as indicated by Figure 1 (Trent, 2001).

Alabama’s population is expected to increase 21.1% by 2025 with the number of households also growing 21.7% by 2025. The largest increase will occur in Shelby County, which has been Alabama’s fastest growing county for several decades, although according to the U.S. Census Bureau Population Projections (2007) Auburn-Opelika MSA is expected to grow the most, by 56%, in the next 17 years. The Montgomery MSA population, which includes the state capital, is projected to grow 30.1% by 2025. The Birmingham MSA will have the strongest population growth centered in the suburban metropolitan counties while declines are projected in largely minority rural counties reflecting their lack of economic opportunity.
Figure 1: Net Migration and Total Single Family Dwelling housing Permits for Alabama MSAs, 1988-2007 (000s).

Source: Own Calculation from Real Estate center at Texas A&M Data

Alabama’s 2004 median household income of $37,062 is only 84% of the national average, and its poverty rate, at 16.1%, exceeds the national average by more than 25%. However, the years following the 2001 recession has seen Alabama job growth increase more rapidly than the overall U.S. economy, and an unemployment rate that remained below the national average (Bryson, 2006). Alabama’s housing market has remained fairly strong despite the national downturn and although the state’s foreclosure rate increased 81% between 2006 and 2007, it still stood at only 0.268 % or about ¼ the national average. During the same period, Alabama's homeownership rate exceeded the national average by 6.3 percentage points according to the U.S. Census Bureau (2008).

Building permit issuance in Alabama MSAs increased by over 150% between 1988 and 2005 but slowed down during the 2004 -2006 although it exceeded the national average (Figure 1). While housing prices doubled across the nation from 1995-2005, Alabama home prices rose only 60%, an average of about 5% per year. One factor that has kept home prices down is that Alabama is a sparsely populated state with a population density of only 91 people per square mile. This makes it easier to build new houses and helps to keep a cap on house price inflation (Bryson, 2006).

Determinants of Housing Demand

An extensive body of literature exists concerning housing demand, with most works confined to specific subtopics within the housing market. A smaller number of studies target specifically the economic factors influencing the demand for housing, a good that is peculiar in its immobility. This literature review relates to the variables in our statistical model and their explanatory power in the case of housing demand.

Rising home prices would tend to result in a decrease in the quantity demanded for housing. However, as Campbell and Cocco (2007) found, a positive relationship may exist if rising home prices increase the perceived wealth of households, or lead to relaxed borrowing constraints. Their work also
suggested that a reverse causality could result, with relaxed borrowing constraints increasing housing demand and therefore prices. Goodwin (1986) noted that inflation-distorted home prices may actually increase demand by acting as inflation hedges, with homeowners using increased home equity to compensate for rising prices in other areas.

Unemployment, by lowering a person’s income, would tend to dampen the demand for new housing. Literature concerning the effects of unemployment on housing have largely ignored this simple assumption and instead focused on the effect homeownership has on unemployment. Oswald (1996) found that a ten percent increase in homeownership increased unemployment by two percent. Other studies have found that this effect to be most relevant for middle-aged homeowners (Green and Hendershott, 2001; Munch, Rosholm and Svarer, 2006). Contributions by Dohmen (2005), Boheim and Taylor (2002), and Evans and McCormack (1994) showed that this effect was somewhat diminished for high skill or high wage workers, who tended to be more mobile. A study using Spanish data by Garcia and Hernandez (2004) that included extensive demographic variables concerning age, income, and marital status found that the previous literature was not relevant for the Spanish market, where high homeownership rates were negatively correlated to unemployment.

Inflation can produce a number of effects on the housing market. By increasing the price of housing, inflation can be assumed to reduce the demand for housing in inflationary times. Yet if used as an inflation hedge, housing demand may actually increase with inflation (Goodwin, 1986). The tax deductible nature of nominal rates of mortgage interest can actually lower the real cost of capital and therefore stimulates demand and homeownership (Rosen and Rosen, 1980); especially, given the fact that capital gains are not taxable for first time home sales. Kearl’s (1979) often cited work stated that inflation’s effect on housing costs serves to lower housing demand, while Feldstein et.al (1978) observed that inflation decreases housing’s attractiveness as an investment. Hendershott (1980) confirmed the negative relationship between inflation and housing demand, and found that carrying costs were much more important in determining this demand than capital gains.

According to Follain (1982), a one percent increase in the anticipated inflation rate reduced homeownership by more than three percentage points for all households with a larger effect occurring for non-elderly married couples. Complicit in this finding was the result that higher interest rates necessarily constrain borrowing. Homeownership usually necessitates borrowing, making the interest rate a key factor in the demand for housing. Aspergis (2003) stated that interest rates were the most important factor influencing housing demand, outweighing both inflation and unemployment as an explanatory variable which reinforced a conclusion suggested by Goodwin (1986), among others. Feldstein and Summers (1978) noted that the tax deductibility of mortgage interest plays a role in increasing the real interest rate, with cost depreciation lowering it. Their work also confirmed the Fisher effect link between inflation and nominal interest rates, with the two variables working together to either increase or decrease housing demand.

The literature concerning the relationship between income and housing demand tends to focus on the elasticity of the demand for housing, rather than the assumption of a positive correlation between income and housing demand. Findings by Follain (1979), in a paper that also used MSA data, reported that high income households had much greater elasticities of demand for housing than lower income households. DeLeeuw (1971) noted that homeowners have greater housing demand elasticities than renters. Lee (1964) computed an income elasticity of less than one for housing stock, which would decrease both the percentage of income spent on housing and the burden of property taxes as income rises. Given that price elasticity was found to be more negative than minus one, the interaction and
relative strengths of these two elasticities could have a significant effect on the impact of income on housing demand. Lee (1963) failed to find that disposable income was a deciding factor in the probability of home purchasing or rental; age of household head and initial home ownership played a far greater role, with even income changes being irrelevant in determining household buying behavior.

Each of the preceding factors plays a role in determining migration. Higher incomes and lower unemployment would increase migration into an area and tend to increase home prices. This in turn would depress housing demand and lower the mobility of homeowners, who will be unable to sell their homes. Migration’s effects on the housing market follow a strict demand and supply model. If an area experiences net immigration, housing demand would increase along with the price of housing. Net outmigration would lower both demand and housing prices (McDougall, 2000). Thus, if we assume, for simplicity, that housing is a particular MSA is a homogeneous good, the immediate effect of positive net migration to an area would be to increase the population and therefore the demand for new housing, with economic conditions underpinning these movements (Kottis, 1971).

The macroeconomic variables of income, inflation, and interest rates can be either preceded or followed by fiscal and monetary responses that play a large role in determining household responses. If recession is accompanied by a loosening of borrowing restraints via the interest rate, as was in the case of the recession beginning in 2001, housing demand may remain strong despite rises in unemployment and decreases in income. A contractionary monetary response to inflation, as was the case in the deep recession of 1981, may dampen housing demand due to higher interest rates, even though housing values, and therefore hedging value, are on the rise. The interplay of these variables and the ultimate outcomes must rest on the empirical evidence presented.

Other factors that influence demand for housing include the homeowner’s age. According to Lee (1963) and Follain (1982), housing demand has been shown to peak at the homeowners age of around 34 years or to increase with homeowners age until at least age 64 (Garcia and Hernandez, 2004).

DATA AND MODELS

Data

The study attempts to analyze the impact of migration on the demand for new housing in Alabama Metropolitan Statistical Areas (MSAs). The MSAs considered are Anniston, Auburn/Opelika, Birmingham, Phenix City, Decatur, Dothan, Florence, Gadsden, Huntsville, Mobile, Montgomery, and Tuscaloosa. Dothan is not considered because of lack of consistent data for the MSA. To do the analysis, net migration and other determinants of demand for new housing are examined across the 11 MSAs between 1988 and 2007 using regression analysis. The time frame was selected after taking into consideration the availability of data.

The study uses a panel data set that comprises the following annual time series variables for the 11 Alabama MSAs from 1988 to 2007: number of new single family building permits issued, value for new single family building permits issued, number of single family houses sold, unemployment rates, population, net migration, real interest rates for mortgages, and per capita personal income.

Data on the number of single-family building permits and the value for new houses issued for each MSA are obtained from U.S. Bureau of Census and Real Estate Center at Texas A&M University; real interest rates for mortgage data are obtained from the Federal Housing Finance Board; unemployment
data is provided by the U. S. Bureau of Labor Statistics; population data are provided by Bureau of Census; houses sales data are obtained from Alabama Center for Real Estate; and personal income data are obtained from the Bureau of Economic Analysis.

**Models**

The study hypothesizes that housing is an extremely heterogeneous good and the housing market is a composite of a large number of smaller markets specializing in different types of housing and being subject to different supply and demand conditions which makes housing demand to be very unique when compared to demand for other commodities. Since we cannot move houses from one locality to another even after demand changes, the study argues that demand for housing will always be local and is therefore influenced mostly by local conditions. A study on the impact of net migration to the quantity demanded for new housing at the MSAs level is likely to reveal more accurate results when compared to studies that mostly look at housing demand from the state or national level perspective.

The study builds on the estimated housing demand model of Ge and Lam (2002), and Halicioglu (2007) among others who summarize a general function of the quantity demanded for houses \( Q_d \) as follows:

\[
Q_d = f(G, H, D, t) \quad (t = 1, 2, 3, \ldots n) \tag{1}
\]

where \( G \) stands for macroeconomic variables such as GDP, interest rates, stock exchange index, etc; \( H \) represents housing related variables such as house prices, income, unemployment rate, etc; and \( D \) is related to demographic variables such as population, number of marriages, birth rates, etc. Following Reichert (1990), Equation (1) is expressed in natural logarithmic multiple regression form as follows:

\[
\ln Q_d = \alpha_0 + \alpha_1 \ln G_t + \alpha_2 \ln H_t + \alpha_3 \ln D_t + \epsilon_t \tag{2}
\]

The appropriate economic and demographic variables to include in Equation (1) are limited mostly by the specific region’s cases and available data set to researchers (Halicioglu, 2007). This study follows Fulpen (1988) and Ge and Lam (2002) who provide surveys on model specifications and empirical evidences in housing demand studies and modifies Equation (2) for Alabama MSAs as follows:

\[
\ln H_d = \alpha_0 + \alpha_1 \ln S_t + \alpha_2 \ln M_t + \alpha_3 \ln Po_t + \alpha_4 \ln P_t + \alpha_5 \ln U_t + \alpha_6 \ln I_t + \alpha_7 \ln C_t + \alpha_8 \ln R_t + \epsilon_t \tag{3}
\]

where \( H_d \) is the demand for new housing as measured by the new permits issued for single housing units, \( S \) is the number of houses that are sold within an MSA which includes new and existing houses, \( M \) is the net migration of population to the MSA, \( Po \) is the population of the MSA, \( P \) is the median house price within the MSA, \( U \) is the unemployment rate that prevails within the MSA, \( I \) is the average per capita income of the MSA, \( C \) is the cost of building a new house within an MSA and is expressed by the value of the permit, and \( R \) is the prevailing average mortgage interest rate in the state of Alabama.

The use of panel data for long-run regression studies poses some difficulties because the time series component of the panel may not be stationary. This study therefore relies on Kao and Chiang (1998) who discuss the properties of the OLS and dynamic OLS (DOLS) estimators for the estimation of the long-run cointegration vector. Kao and Chiang (1998) find that the OLS fixed effects estimation of the panel is subject to a non-negligible bias in finite samples. For this reason, they propose alternative DOLS estimator based on Stock and Watson (1993) obtained from running the following regression:
The DOLS regression adds to the OLS the leads and lags of the differences of the independent variables. Kao and Chiang (1998) also show that the DOLS estimator is preferable to OLS since it ensures asymptotically unbiased estimates and avoids the estimation of nuisance parameters. The DOLS estimation for equation (3) was estimated and the results are reported in Table 1. To resolve the auto-correlation problem that is common with time series data, the model was run using the Cochrane – Orcutt correction method for auto-correlation. The expected signs for the coefficients used in the study are expected to be positive except for building cost, unemployment, and the interest rates.

RESULTS AND DISCUSSION

Data was analyzed using the DOLS regression technique using the software LIMDEP. The F-statistic for the DOLS regression was 90.2 and is statistically significant at the 1% level. The results indicates that the number of houses sold, net migration, population, median house price, unemployment level, per capita income, cost of building a new house, and interest rates are together statistically significant (i.e., they strongly influence the demand for the new housing). The $R^2$ for the regression model was 0.783 which is an indication of good predictive power. It implies that the variables used in the model can explain 78% of the demand for new housing in Alabama MSAs.

The estimation results show that the sign and size of all parameters, except per capita income, were as expected in the corrected DOLS regression. The coefficient for houses sold was statistically significant at 1% level, consistent with our expectations. This indicates that as more existing houses are sold in Alabama MSAs, they act like a signal for increased future demand for housing, which translates to increased demand for new housing. The results indicate that a 1% increase in the number of houses sold, \textit{ceteris paribus}, will lead to 0.12% increase in the demand for new housing.
Migration and Demand for New Housing in Alabama MSAs

Table 1: Dynamic Ordinary Least Squares Regression (DOLS) results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>1.433</td>
</tr>
<tr>
<td></td>
<td>(-3.600)***</td>
</tr>
<tr>
<td>Houses Sold</td>
<td>0.117</td>
</tr>
<tr>
<td></td>
<td>(3.514)***</td>
</tr>
<tr>
<td>Migration</td>
<td>0.053</td>
</tr>
<tr>
<td></td>
<td>(2.450)***</td>
</tr>
<tr>
<td>Population</td>
<td>0.284</td>
</tr>
<tr>
<td></td>
<td>(5.311)***</td>
</tr>
<tr>
<td>Median House Price</td>
<td>0.147</td>
</tr>
<tr>
<td></td>
<td>(1.827)**</td>
</tr>
<tr>
<td>Unemployment</td>
<td>-0.030</td>
</tr>
<tr>
<td></td>
<td>(-3.055)***</td>
</tr>
<tr>
<td>Per Capita Income</td>
<td>-0.339</td>
</tr>
<tr>
<td></td>
<td>(-2.751)***</td>
</tr>
<tr>
<td>Building Cost</td>
<td>-0.100</td>
</tr>
<tr>
<td></td>
<td>(-2.190)***</td>
</tr>
<tr>
<td>Interest Rates</td>
<td>-0.049</td>
</tr>
<tr>
<td></td>
<td>(-4.150)***</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.783</td>
</tr>
<tr>
<td>$F$-Stat</td>
<td>(90.2)***</td>
</tr>
</tbody>
</table>

$t$-ratios in parenthesis

*** significant at 1% level.

The coefficient for net migration is positive and significant at 1% level, consistent with our expectations. The results of the net migration coefficient indicate that a 1% increase in net migration to Alabama MSAs will lead to 0.05% increase in the quantity demanded of new housing. The coefficient for population was also positive and significant at 1% level, consistent with our expectations. The results indicate that when population increases by 1% in Alabama MSAs, $ceteris$ $paribus$, demand for new housing will increases by 0.28%. Results for the other explanatory variables that were included in the model are discussed next.

The coefficient for median house price was positive and significant at 5% level. This is consistent with our expectations since higher house prices are expected to lead to high levels of residential construction as increased margins encourage more market participants. The results of the study show that a 1% increase in median house price, $ceteris$ $paribus$, will lead to 0.15% in the demand for new housing. The unemployment coefficient showed a negative relationship between unemployment and demand for new housing, consistent with our expectations, and was significant at 1% level. The results indicate that as unemployment increases by 1% in Alabama MSAs, $ceteris$ $paribus$, demand for new housing will decrease by 0.03%.

The interest rate coefficient was negative and significant at 1% level, consistent with our expectations. This implies that when mortgage interest rate increases by 1%, $ceteris$ $paribus$, demand for new housing decreases by 0.05%. The coefficient for cost of building a new house was also negative and significant at 1% level which is an indication that as cost of putting up new housing increases in Alabama MSAs, it dampens the demand for new housing. The result showed that when cost for putting
up new houses in Alabama MSAs increases by 1%, ceteris paribus, demand for new houses would decreases by 0.1%.

Although per capita income was significant at the 1% the coefficient was negative, which is not consistent with our expectations. The results would indicate that as per capita income increases within Alabama MSAs, demand for new housing will decrease by 0.34%. The results of Eisenberg (2008) and American Housing Survey (2005) can be used to advance and explanation to this outcome. Eisenberg (2008) notes that first-time buyers tend to be younger with lower incomes and are more sensitive to house prices. By contrast, move-up buyers have substantially higher incomes largely because they are older and likely to have experienced income growth subsequent to the first home purchase that is in part what makes the move-up purchase possible. Since our study estimated demand for new housing, and increases in per capita income usually benefit low income residents or first time buyers, while demand for new housing comes from move-up buyers, the two variables (demand for new housing and per capita income) may not be strongly correlated.

CONCLUSION

A large literature has addressed both economic and demographic factors and how they affect new housing demand at the national and state level in the US. However, housing is an extremely heterogeneous good and the housing market is a composite of a large number of smaller markets specializing in different types of housing that are subject to different supply and demand conditions. Thus, demographic and economic factors influence most the demand for new housing at the local level. This appears to be largely ignored in the literature.

This study attempts to analyze how net migration and other determinants of the demand for new housing effect the quantity demanded of new houses in Alabama MSAs using a panel time series dataset that covers 1988 to 2007. The dataset contains the value of new single family building permits issued, number of single family houses sold, net migration, population, median home price, unemployment rates, per capita personal income; and real mortgage interest rates for the State of Alabama.

The study finds that net migration tends to increase demand for new housing in Alabama MSAs. Also, increased sale of existing houses in the market acts like positive signal that influences the demand for new housing in Alabama MSAs as depicted by the sales coefficient. On the contrary, the cost of new housing, real mortgage interest rates, and unemployment rates were found to negatively influence the demand for new housing in Alabama MSAs. The study finds no evidence to suggest that increased per capita income directly influences the demand for new housing in Alabama MSAs.

In terms of policy, the state government should strive to develop and implement policies that allocate economic activity more evenly around the state. This will ensure that new migration is not heavily concentrated in the few MSAs but spread out to other smaller cities. By doing this, there will slow down house price inflation and make houses affordable to most people.

LIMITATIONS OF THE STUDY

The study in its current form has some limitation that should be taken into account when looking at the implications and contribution of the study. The first limitation has to deal with the causative effect between migration and housing demand. While migration adds to the demand for housing to a locality,
it helps improve the supply of housing through expanding the housing work force. The other limitation has to do with the definition of the housing market. The paper assumes that housing is a homogenous good but in reality housing varies from the place to place, and with the passage of time making price comparisons a more difficult. All in all, the authors raise awareness on how net migration interacts with the housing market in Alabama MSAs while opening up opportunities for future research.

REFERENCES


HOW THE AGENCY AND SHAREHOLDER THEORY AFFECT THE FINANCIAL STATEMENTS?

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ABSTRACT

The purpose of this paper is to note how the Agency and Shareholder theory affects the financial reporting process. The financial reporting process is defined by the level of service that the financial statements provide to shareholders and stakeholders. By examining the Shareholder theory, and noting what impact the shareholders have on the financial statements, one can start to examine how shareholders, stakeholders and agents influence the financial reporting process in an organization and the agency conflicts that exist.

Keywords: Agency Theory, Shareholder Theory, Financial Statement

AGENCY THEORY

Definitions

The separation between owners and managers create an agency relationship. The agency relationship exists when one or more persons (the principal or principals) hire another person or persons (the agent or agents) as decision-making specialist to perform a service (Chen, 2008). Defining the agency problem as one of ensuring that management does not expropriate or waste financial suppliers’ capital. “The separation of ownership from control produces a condition where the interests of owner and of ultimate manager may, and often do, diverge” (McIntyre, Murphy, & Mitchell, 2007). Jensen and Meckling note agency problems exist when managers own less than 100% of the firm. With the less than 100% ownership managers can and will shift part of the cost associated with decisions made in their own interests and not necessarily in the best interests of the organization (Jassim, Dexter, & Sidhu, 1988).

Boards of directors (BOD) are teams whose effectiveness can be accessed through group dynamic constructs in the organizational behavior literature (McIntyre et al., 2007). The Board of directors is an important institution for mitigating the agency problem that arises with absentee ownership. The agency problem in this context is that the interests of management may differ from the interests of the shareholders for whom they work and that management may make business decisions in response to the former rather than the latter. The role of the Board is, in part, to deal with this potential conflict of interest, and thus reduce agency costs (McIntyre et al., 2007).

According to agency theorists, effective boards independently monitor strategic challenges facing a firm and evaluate management’s performance in addressing these trials (Carpenter & Westphal, 2001). Agency theory also suggests that directors are motivated to engage in competent monitoring activity by...
the reputational effects of poor decisions (Carpenter & Westphal, 2001). Although agency theorists emphasize the board's role as an independent control mechanism, they also serve to provide ongoing advice to top managers on possible strategic changes. In such cases, boards serve as a strategic consultant to top managers, rather than or in addition to exercising independent control (Carpenter & Westphal, 2001).

Theory Building of Agency Conflicts

Presence of agency conflicts when shareholders have delegated governance responsibilities to a self-interested Board of Directors (BOD) has a bearing on the financial statements and its preparation (Cyert, Kang, & Kumar, 2002). Agency conflicts occur when managers are motivated by power and control rather than maximizing stockholder wealth (Jensen, 2005). Agency conflicts are inherent in the process and the BOD is one of many monitoring functionalities that could help diminish the detrimental efforts of no supervision.

Risk Conflicts

Corporate governance has adopted an agency theory approach, focusing on resolving conflicts of interest between managers and shareholders. Accounting tries to implement and adopt the process of supervision and checks and balances with the uses of internal controls intended to ensure that management acts in accordance with the shareholder's interest. This divergence is mitigated by the Board of Directors.

SHAREHOLDER THEORY

Should maximizing shareholder wealth continue to be the singular purpose of American corporations, or should they be designed to accommodate and be held accountable for meeting the goals of multiple stakeholders (Kochan & Rubinstein, 2000)? To properly analyze these question definitions must be established prior to the analysis of the theory.

Definitions

The first task in developing the positive features of a shareholder theory is to define who stakeholders are and how a stakeholder firm differs from a conventional shareholder-wealth-maximizing firm (Kochan & Rubinstein, 2000). Stakeholders are defined subsequently followed by shareholders being defined. The Shareholder value theory is postulated prior to noting the realm in which the financial statements are used in conjunction with shareholder value.

Stakeholders

Investing in stakeholder management may be complementary to shareholder value creation and may indeed provide a basis for competitive advantage as important resources and capabilities may be created that differentiate a firm from competitors (Hillman & Keim, 2001). "A stakeholder in an organization is any group or individual who can affect or is affected by the achievement of the organization's objectives" (Jawahar & McLaughlin, 2001). Accounting theory posits that the goal of economic organizations is to maximize stockholders' wealth (Jassim et al., 1988).

Adopting a 'narrow' definition of stakeholders in that we consider primary stakeholders as those stakeholders who bear some form of risk as a result of having invested some form of value in the firm.
These stakeholders are those without whose participation in the corporation cannot survive. Primary stakeholder groups typically are comprised of capital suppliers or shareholders and investors, employees, customers, suppliers, and other resource suppliers, community residents, and the natural environment together with what is defined as the public stakeholder group: the government and communities that provide infrastructures and markets, whose laws and regulations must be obeyed, and to whom taxes and other obligations may be due (Jawahar & McLaughlin, 2001). Employees establish themselves as influential, definitive stakeholders by using their knowledge to improve organizational performance (Kochan & Rubinstein, 2000). All of these groups are collectively referred to as stakeholders of the organization and as such present an inherent agency conflict as noted earlier.

**Shareholders**

The publicly held American corporation thus stands at one extreme by operating under a set of legal rules and a deeply embedded ideology and power structure that reinforces the view that the purpose of the corporation is to maximize shareholder wealth (Kochan & Rubinstein, 2000).

The key distinction is that a stakeholder firm has multiple objectives rather than a single superior ordinate goal. Whether, however, a stakeholder firm achieves joint maximization of the different objectives (i.e., whether it is more efficient than a pure shareholder model because it both raises shareholder returns and achieves other stakeholder objectives), matches the shareholder returns of conventional firms and achieves other stakeholder objectives, or redistributes a portion of shareholder returns among different stakeholders is ultimately an empirical question, depending on the firm's performance and on how its profits are distributed (Kochan & Rubinstein, 2000). Therefore, organizations seek to maximize shareholder wealth through the use of the primary stakeholders.

**History of Shareholder Value**

The theory of shareholders value has evolved through years. In the early years of the nation, corporations were expected to exist for the public good. Over the course of the 1800s considerable theorizing and experimentation ensued with alternative organizational forms that sought to internalize the interests and objectives of different groups, such as consumer, producer, or worker (Kochan & Rubinstein, 2000). Gradually, shareholders gained property rights enforced by contracts and limited liability doctrines and managers who were held accountable for using the firm's resources to maximize shareholders' interests. Over time, management thus began to be viewed as the shareholders' agents. Given the importance of capital, within the firm financial specialists rose to the pinnacle of power (Kochan & Rubinstein, 2000).

**Shareholder Value Theory—in Depth**

Wood and Jones (1995) argue that stakeholder theory holds the key to understanding the structures and dimensions of business and society relationships. Normative stakeholder theory is that firms should attend to the interests of all their stakeholders not just their stockholders (Jawahar & McLaughlin, 2001). Descriptive stakeholder theory of the firm posits that the nature of an organization's stakeholders, their values, their relative influence on decisions and the nature of the situation are all relevant information for predicting organizational behavior (Jawahar & McLaughlin, 2001). The particular stakeholder or stakeholders with potential to meet those needs will be perceived as critical to organizational well-being, and their concerns and issues will be addressed proactively, or at least accommodated (Jawahar & McLaughlin, 2001). Central thesis of their theory is that stakeholder will be
positively related to the cumulative number of stakeholder attributes of power, legitimacy, and urgency (Jawahar & McLaughlin, 2001).

**Accounting Standards**

Accounting Standards aim to do two things. First they aspire to reduce the number of options available to a company when it is selecting how it will calculate accounting transactions. Second, they seek to increase the disclosure of important information about a firm and its accounting policies (McCallig, 2007). When examining the quality of financial reporting, we keep in mind four different aspects of how accounting policies are chosen and applied:

1. Disclosure
2. Comparability (with other potential investments)
3. Complexity and

The complexity of financial statements has grown exponentially as more accounting standards have been introduced. This complexity is a substantial barrier to investors and analyst understanding of firm results. Firms can change their accounting policies. Some of these changes are forced onto firms by changes in accounting standard and some are voluntary (McCallig, 2007). The financial statements of an organization should be transparent. The quality of the decisions made by these stakeholders is dependent on both the quality of financial information available to them and their understanding of the limitations of financial statements (McCallig, 2007). As such, agents must chose the method of accounting to properly depict the financial state of the organization. They may in turn choose a more favorable method for their own interests as opposed to the more conservative method in accounting. In this realm is when the board of directors and other internal control mechanisms will need to be maintained to ensure proper recording of the financial transactions and to mitigate the agency conflicts.

Eroded public trust and investor confidence in financial reports and audit services lead to Congress responding by passing the Sarbanes-Oxley Act (SOX) in July 2002. Several other corporate governance reforms, including the Securities and Exchange Commission’s (SEC) rules to implement provision of SOX, listing standards of national stock exchanges (NYSE, NASDAQ), and best practices by investor activist and professional organizational, were developed with the intent to restore public trust and investor confidence in public financial information (Crumbley, 2007). SOX is a type of corporate governance to mitigate agency conflict that could finds its way to toward the financial reports. Sarbanes-Oxley Act of 2002, was widely regarded as the most extensive US federal law related to corporate governance since the implementation of federal securities laws in 1933 and 1934 (Uzun, Szewczyk, & Varma, 2004). The oversight role of corporate boards with regard to their fiduciary duty to act in the best interest of corporations shareholders was the pinnacle of these rulings. Most of the attention has been focused on board of directors at companies that commit financial statement fraud (Uzun et al., 2004).

**IMPACT ON FINANCIAL STATEMENTS**

The financial statements of an entity are presented to the primary stakeholders and shareholders to monitor financial performance. As such the financial reports serve as a tool to the shareholders and stakeholders alike. Arthur Levitt former chairman of the Securities and Exchange Commission (SEC) noted in 1998: if ‘The bond between shareholders and the company is shaken; investors grow anxious;
How the Agency and Shareholder Theory Affect the Financial Statements?

prices fluctuate for no discernible reasons and the trust that is the bedrock of our capital markets is severely tested (Anand, 2004). In 1999, he also stressed the importance of high quality information as the lifeblood of strong, vibrant markets. Without it, investor’s confidence erodes. Liquidity dries up. Fair and efficient markets simply cease to exists (McCallig, 2007). We as financial statement users rely on these reports of the firm to learn about the firm’s performance and value.

Quality of Financial Reporting

If financial information is negative, shareholders can become dissatisfied with management. This dissatisfaction can result in a divestiture of their corporate holdings and a corresponding decrease in the value of the corporation’s stock. As a result, management has an incentive to do whatever it can in preparing financial statements to meet earnings projections set by analysts and to affirm that management of the corporation has been performing well (Anand, 2004). This is but one example of how agency conflicts develop in the financial statements. Accounting serves as a “checkup” that may be used by stakeholders to access this important aspect of a company’s governance. (McCallig, 2007). Unfortunately, some critics contend that disclosures of accounting formation are an unnecessary expense for the corporation. Veblen explains, stockholder are interested only in information on their wealth and no need for information on the operation of the firm (Jassim et al., 1988). Information on the corporation should be disclosed whether positive or negative. A regular reporting cycle should be maintained to provide the information. The shareholder can decide what to do with the information but it should be available and hence will continue to provide for the examination of agency conflicts if the information is regularly disclosed.

Wall Street Expectations

The motivation to satisfy Wall Street earnings expectations is beginning to override long established precepts of financial reporting and ethical restraint. The quality of financial reporting relies on three things.

1. Generally Accepted Accounting Principles (GAAP) in force,
2. Willingness of boards of directors to apply GAAP properly in preparing their financial statements, and
3. Enforcement of GAAP by regulators and auditors (McCallig, 2007).

Careful study of financial statements can yield great benefit for investors and analysts only if prepared according to GAAP and relevant account standards only if prepared free of agency conflicts and bias.

Transparency of Numbers

Fraud of stakeholders occurs when the company cheats. Fraud of financial reporting takes place when agents of the company misrepresent the company’s financial condition (Uzun et al., 2004). Board independence is a necessary condition for effective governance. Audit committees are responsible for overseeing the financial reporting process and ensuring the objectivity of the external audit (Uzun et al., 2004).

Imhoff (2003) argues that in the US the financial reporting regimes, particularly through cash bonus and stock option plans based on accounting results, have presented managers with incentives to manipulate financial results and delay or conceal bad news. Window-dressing is employed to apparently exceed shareholders’ expectations. Board members also are often compensated with stock...
options, which thereby can induce them to avoid recognizing or dealing with unfavorable corporate performance, and to mask unfavorable financial news (Parker, 2007).

However the external corporate reporting and governance relationship is not limited to financial compensation and results alone. As Bebbington (2004) explains, governance is about a suite of broad responsibilities at corporate level that extend to accountabilities that include corporate social and environmental impacts. These raise issues of accountability and reporting transparency that go beyond financial status and results (Parker, 2007).

Agency Costs of Financial Statements

Several agency costs are reflected in the financial statements. One form of agency costs is the cost of monitoring managers. The supervision of managers comes with a price of hiring and/or implementing a system to do so. A second cost is risk aversion on the part of managers. The shareholders have diversified portfolios of cost and with non diversified risk whereas manager are wholly invested with the firms for their employment are less risk taking (Easterbrook, 1984).

Agency costs as defined by Jensen are costs associated with cooperative efforts by human beings, arising when one entity, the principal hires another, and the agent to act for him or her. The agency costs are the sum of the contracting, monitoring and bonding costs undertaken to reduce the costs due to the conflicts of interest plus the "residual loss" that occurs because it is generally impossibly to perfectly identify the agents interest with that of the principal (Jensen, 2005).

DISCUSSION

Corporation's survival and continuing success depends upon the ability of its management to create sufficient wealth, value, or satisfaction for all primary stakeholder groups. Additionally, "the economic and social purpose of the corporation is to create and distribute increased wealth and value to all its primary stakeholder groups, without favoring one group at the expense of others" (Jawahar & McLaughlin, 2001). The ultimate objective of corporate decisions is marketplace success. Firms contract with their managers and stakeholders on the basis of mutual trust and cooperation, they will have a competitive advantage over firms that do not (Jawahar & McLaughlin, 2001).

The board of directors is at the apex of the decision making process in public corporations. Every major operational or strategic decision must go through the board (Kassinis & Vafeas, 2002). The board of directors is one of several internal governance mechanisms that are intended to ensure that the interest of shareholders and managers are closely aligned, and to discipline or remove ineffective management teams (Barnhart, Marr, & Rosenstein, 1994). Monitoring management performance is considered to be among the most fundamental of board duties. The board serves as shareholders' first line of defense against incompetent or abusive managers (Kerr, 1997). The defense strategy involves fighting against addressing a stakeholder's issues or completely withdrawing and ignoring the stakeholder (Jawahar & McLaughlin, 2001). The accommodation involved anticipating and accepting responsibility, respectively; both involve addressing stakeholder issues to enhance the interests of stakeholders (Jawahar & McLaughlin, 2001). The stake of the Board in the firm’s financial success, and other such matters, the effectiveness of the Board will depend in part on how well the Board functions as a group (or as a team) to handle the complex tasks it faces (McIntyre et al., 2007). The board of directors is a solution to the agency problem and divergence. If they function in their appropriate role to stop the corruption and
monitor the agency problems far fewer organization would result in overvaluing their firms and hence having to restate their financial reports.

Organizations will pay more attention to and be more concerned with issues of stakeholder groups who control resources critical to the survival of an organization (Jawahar & McLaughlin, 2001). Stakeholders who are critical for survival have to be dealt with in a proactive manner or, at the very least, accommodated (Jawahar & McLaughlin, 2001).

Contributing valued resources creates incentives for others to recognize a potential stakeholder, while putting resources at risk gives one a moral claim to stakeholder status. By developing longer-term relationships with primary stakeholders like customers, suppliers, and communities, as well as present and future employees, firms expand the set of value-creating exchanges with these groups beyond that which would be possible with interactions limited to market transactions. The emphasis is on the value that can be created by interactions, between firms and primary stakeholders, who are relational rather than transactional since transactional interactions can be easily duplicated and thus offer little potential for competitive advantage. Relationships involve investments by both (or multiple) parties and thereby include a time dimension. Reputation is important and fair dealing and moral treatment by both (or multiple) parties enhance the value of relationships (Hillman & Keim, 2001). Many scholars now argue that intangible, difficult-to-replicate resources must undergird the business processes if a firm is to outperform its rivals and create value for shareholders (Hillman & Keim, 2001).

Good control systems and monitoring by intelligent people of integrity in a well designed governance system are always necessary for effective control of corporate agency problems (Jensen, 2005). Internal controls and proper checks and balances should be established within the accounting and financial reporting cycle to ensure transparency in the financial data.

One of the major ways board of directors can help diminish the costs of agency problems is by taking responsibility for eliminating target based compensation systems and creating an environment of monitoring.

CONCLUSION

To summarize the agency theory holds a leg in the relationship between the board of directors and the management team. The shareholders also have an agency relationship. The shareholders can have an influence in the generation of the financial statement because the board and management want to report favorable results to maximize shareholder value. Also, management may have an incentive to report favorable results as well. Sarbanes Oxley and the board of directors server to mitigate the agency conflicts that are inherent in the process. Internal controls and monitoring should not be overlooked as these processes will also ensure accurate and transparent financial reporting.

REFERENCES


STOCK REISSUES: THE MIRROR IMAGE OF REPURCHASES?

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Chonnam National University, Korea¹, University of Houston–Victoria, USA² and Kent State University, USA³

ABSTRACT
This study examines the reissuance of shares previously repurchased, which is also known as reversed repurchases. In the study, the two hypotheses are tested. First, extending the signaling hypothesis that explains the positive response to the stock repurchases, we posit that the (reverse) signaling hypothesis should explain the negative response to the stock reissues. Second, we anticipate that the window of opportunity hypothesis can also explain the managers’ motivation behind stock reissues. The difficulty with the reversal signaling hypothesis is finding a mechanism that would give the firm’s manager an incentive to reduce the value of overvalued stock via reissue. Thus, it is posited that signaling hypothesis alone cannot explain the managers’ motivations behind reissues. Taking advantage of the unique regulatory and disclosure requirements on reissues in Korea, this study empirically tests the hypotheses using the data on reissues. Overall the market responses to the reissues is negative, thus the notion that reissue is a mirror image of the stock repurchase has some empirical supports. However, regression from partitioned sample indicates that the results are mixed. The reverse signaling hypothesis is supported only in the first-time reissue samples, but not in the non-first-time reissue samples. However, we found that non-first-time reissues can better be explained by window of opportunity hypothesis.

Keywords: Stock Reissues, Stock Repurchases, Information Signaling, Window of Opportunity

INTRODUCTION
This study empirically tests whether the reissues are the mirror image of the stock repurchases that the firm executed previously. The impetus from this study is that the reissues are theoretical opposites of the repurchases. Repurchased shares, also called treasury stocks, can be reissued in the form of seasoned equity offerings in the United States and in the form of reverse repurchases in countries such as Korea.

The type of research conducted in this study concerning a sequence of signals is essential given the fact that corporate decisions and actions do not occur in isolation. There exists a large body of literature studying the stock market’s reaction to the corporations’ announcement of both open market stock repurchases and seasoned equity offerings. Most of these studies are in agreement that these two actions signal management’s belief about its firm to the market. Open market stock repurchases signal management’s belief that its stock is undervalued while seasoned equity offerings signal just the opposite—that its stock is overvalued. Even though the repurchase of stocks has been around for decades in the U.S., there is very little empirical evidence on reissues because reissues are not used in
the United States. For instance, repurchased stocks can only be reissued in the form of seasoned equity offerings in the U.S.

Unlike the U.S., most European and Asian countries that have allowed repurchases after a long period of prohibition in early 1990s have placed significant restrictions on repurchases. In countries with strict regulatory and disclosure rules, data needed to test the hypothesis is available. Korea is one of the countries that require the disclosures on incidents of repurchases and reissues. This study makes use of Korea’s unique regulatory environment to investigate how the market reacts to a sequence of opposite signals. In particular, we examine situations where a firm first conducts an open market repurchase and subsequently conducts a stock issue that effectively reverses the repurchase. In essence, the reissue provision allows Korean firms to reverse some or all of the effects a previously conducted repurchase had on them. We are not aware of any other country that has a similar regulatory provision to that of Korea’s.

Several aspects of Korea’s regulatory situation with regard to stock reissues make this market suitable for the type of analysis we conduct. For instance, the reissue must be completed within three months after the announcement. There is a blackout period for reissue as well; the reissue must be at least six months after the completion of the preceding repurchases. The number of reissued shares must be no greater than the number of shares actually repurchased in the preceding repurchase. The regulations regarding the reissue process are essentially a mirror image of the repurchase process. The reissue must also be publicly announced and it too must be completed within three months. At the end of the reissue period, the firm must disclose information about the reissue. Due to this unique regulatory structure, we can accurately identify a sample of firms that announce and conduct an open market repurchase and thereby presumably signals to the market that their stock is undervalued. These firms then conduct a reissue that essentially reverses the repurchase and thereby presumably signals to the market the overvaluation of their stocks.

The objectives of this paper are twofold. This paper first tests if reissues subsequent to repurchases effectively reverse the repurchases. According to signaling hypothesis, a firm conducts a repurchase when the stock is undervalued. It also states that as a result of repurchase announcement, the value moves up toward fair value. Reissues can also be explained with a (reverse) signaling hypothesis as the reissue is a mirror image of repurchase. The signaling hypothesis suggests the market should respond positively to the announcement of a repurchase since it signals that the asset is undervalued. It is anticipated that the market’s response to the announcement of the reissuance of repurchased shares, following the positive reaction to a precedent repurchase, would be negative. Thus this study is an extension of signaling hypothesis developed from the context of repurchases to reissues.

This study also examines the window of opportunity hypothesis as suggested in previous literature (Bayless and Chaplinsky, 1996; Fried, 2005) in the context of reissues. The difficulty with the reversal signaling hypothesis is finding a mechanism that would give the firm’s manager an incentive to reduce the value of overvalued stock via reissue.

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1 The repurchase programs in Korea, allowed since 1994, are very similar to the open-market repurchases in the United States and other countries around the world, but the Korean regulators place significant restrictions on the programs. There were no limits in fraction of stocks can be repurchased, but the funds used for repurchase can only come from internally generated funds. The repurchases must be completed within three months, which is substantially shorter than most other markets. For example, the time limit is 18 months in France, one year in Canada, one year in Japan, and three years or more in the United States. However, market reaction to the announcement of an open market repurchase is very similar to the response in other markets. For example, Jung et al (2005) report that an average cumulative abnormal return for (0,+5) is positive 2.74%, which is similar to the results reported in other markets.
However, we can think of two possible circumstances in which incentive for reissue prevail. First, firms with fluctuating cash needs would reissue to generate such cash needs. For instance, a firm conducts a repurchase to distribute excess cash, but due to changes in conditions the firm conducts a reissue to raise cash. In such circumstance, the decision to make is not rest on whether to reissue or not any more. The concern of the firm now shifts to the issue as to when the right time to execute reissue be. One justification for reissue therefore is that, the firm would reissue if they feel that the stock is fairly valued, so there is no need to wait any further.

Second, a firm with growth opportunity would repurchase with reissue placed in plan. It may be particularly applicable when the firms anticipate substantial growth opportunities but the stock is significantly undervalued. Once the stock is close to fair value the firm reissues the acquired stock through repurchase to raise cash to fund growth opportunities. And this resulted in decline in value. This hypothesis is closest to hypotheses advanced in most of the United States based dual signaling literature, particularly Billett and Xue (2007). But in most other cases, the signaling hypothesis alone may not explain the company’s decision to reissues in general.

REVIEW OF LITERATURE

Two lines of research appeared to be relevant to this paper - stock repurchases and seasoned equity offerings. The main empirical regularity in literature on stock repurchases is that the market reacts positively to the announcement of a repurchase (e.g. Vermaelen, 1981; McNally, 1999; Ikenberry et al., 2000). Previous studies find this pattern in the Korean market as well (e.g. Jung et al, 2005). The most frequently mentioned explanation is that a repurchase serves as a signal to the market that the managers of the firm believe that the stock of the firm is undervalued (Persons, 1997; McNally, 1999). It is this explanation that is most relevant to our study.

In contrast, the major finding in this literature concerning seasoned equity offerings is that the market reacts negatively to the announcement of an equity offering (e.g. Masulis and Korwar, 1986; and Bayless and Chaplinsky, 1996). The most frequently given explanation for these empirical results in the equity offering literature is again based on information signaling. In this case the announcement that the management of the firm believes the stock is overvalued.

However, studies that involve sequential signals are still relatively rare. Examples include D’Mello et al (2003) who study sequences of seasoned equity offerings; and, Howell and Payne (2004), who study stock-based acquisitions followed by stock repurchases. Perhaps the study most closely related to our study is Billett and Xue (2007), who, among other things, study stock repurchases followed by seasoned equity offerings in the United States. They find that the market reaction to the announcement of a seasoned equity offering is significantly less negative when it is preceded by a repurchase announcement. They conclude that the repurchase announcement mitigates the adverse selection problem associated with issuing equity. Our study differs from Billett and Xue (2007) in that the equity offering in our sample serves only to reverse the original repurchase.

METHODS

Hypothesis

H1: (Reverse) Signaling Hypothesis. We suggest the reverse signaling hypothesis to explain the observed reissue behavior of Korean firms. We posit that signaling hypothesis should explain in reverse form the reissue that reverses the stock repurchase. Considering that reissue is a mirror
image of repurchase, reissue would provide a construct to test the validity of the signaling hypothesis in reverse direction. According to the reverse signaling hypothesis, a firm conducts a reissue if the stock is overvalued, and as a result of reissue, the value moves down toward fair value. We conjecture that the market response to the announcement of a reissue should essentially be the mirror image of the response to a repurchase. Signaling hypothesis suggests that market should respond positively to the repurchase announcement because it signals that the value of the assets was undervalued. Thus, it is anticipated that the market responds negatively to the announcement of a reissue of the repurchased stocks and positively to the announcement of a precedent repurchase.

**H2: Window of Opportunity Hypothesis.** We posit that signaling hypothesis can explain the repurchases in most cases but it cannot explain the reissues in a special circumstances in which decline in stock price would benefit the firm and its manager. It calls for alternative hypothesis that can explain the most reissues. For this, we constructed that the motivation of the firm to repurchase or reissue is to exploit the window of opportunity. In order to explain the cross-sectional difference in market responses to the announcements of reissues, we partition the sample based on the frequency of reissues varies. We anticipate that the market response to repetitive reissues should be smaller than those of the first-time reissues as the market already absorbed the signaling aspects of the reissue disclosures. When the reissue decision is announced for the first time, it impacts the market significantly. However, the market’s negative reaction to multiple announcements would be different from those of the first-time reissues as there must have some reasons other than signaling behind repetitive reissues. It is posited that reverse signaling motivation would be relatively smaller in repetitive reissues as compared to the first-time reissues.

**Sample and Data**

A typical event study methodology of Brown and Warner (1985) was used to assess the market reaction to the announcements of both reissues and repurchases. As the event date, we use the first disclosure date of the planned reissue and its matching repurchase. Korean firms are required to complete the repurchase as reissues within a three month period. At the end of the three month period, the firm must disclose information about the repurchase including the number of shares actually repurchased. Both repurchases and reissues were identified using the Security Market Daily provided by the Office of Disclosure of the Korea Stock Exchange. The event date is usually the date that the Board of Directors made the decision and the firm should begin to repurchase or reissue within three days after the disclosure.

**Table 1: Distribution of Repurchases and Reissues**

<table>
<thead>
<tr>
<th>Year</th>
<th>Repurchases</th>
<th>Reissues</th>
<th>Non-first-time reissues</th>
<th>First-time reissues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>57</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1995</td>
<td>52</td>
<td>11</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>1996</td>
<td>92</td>
<td>23</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>1997</td>
<td>133</td>
<td>27</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>1998</td>
<td>93</td>
<td>23</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>1999</td>
<td>56</td>
<td>51</td>
<td>0</td>
<td>51</td>
</tr>
<tr>
<td>2000</td>
<td>115</td>
<td>21</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>2001</td>
<td>56</td>
<td>28</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>2002</td>
<td>74</td>
<td>50</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>2003</td>
<td>61</td>
<td>43</td>
<td>0</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>789</td>
<td>279</td>
<td>130</td>
<td>149</td>
</tr>
</tbody>
</table>

Our sample period covers the first ten years from 1994 in which reissues and repurchases were allowed in Korea. We deleted reissues by firms from the financial services industry, since in Korea firms
in the financial services industry are very heavily regulated. We also deleted announcements of preferred stock repurchases, thereby including only repurchases of common stock. As shown in Table 1, these sample selection procedures resulted in a sample of 279 reissues and 789 repurchases. Among the 293 reissues, we identified 149 first-time reissues, 149 matching pair of repurchases, and 130 repetitive (non-first-time) reissues.

Daily stock returns data from the Korea Investors Service, Inc.’s KIS-SMAT database were used. The estimation period for the market model was days (-240, -61). We compute Average Abnormal Returns (AAR%) and Cumulative Average Abnormal Returns (CAAR%) over 151-day period (-60, 90).

RESULTS

Descriptive Statistics of Reissues

Table 2 shows the descriptive statistics of the sample reissue firms used in this study. As shown in the table, the TFR (total fraction of repurchase) and RTFR (relative total fraction of repurchase) are 2.07% and 3.17% on average, respectively. The rates of the price change from the time of repurchase and the time of reissue are 12.47% and 4.18%, respectively, on average. The results from Table 3 showed that the AARs of the reissue sample in days 3 and 4 are -1.173% and -0.988%, respectively, and they are statistically significant at the 0.05 levels. In contrast, the market responses to the announcements of repurchases are positive in the 5 days beginning with the disclosure date. The AARs of the days 0, 1 and 2 are 0.945%, 1.172% and 0.659%, respectively, and they are all statistically significant at the 0.01 level. Also notable in Table 2 are the negative and significant returns in the period before the announcement of the repurchase and positive returns before the announcements of reissues. This pattern of negative returns in pre-repurchase period and positive post-repurchases returns is also well documented in the previous literature on repurchases in the United States and around the world, including Korea (Jung et al., 2005). Our results showed that the reverse signaling hypothesis can also explain the negative market responses surrounding the announcements of reissues.

Table 2: Descriptive Statistics of Reissue Firms

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Max</th>
<th>Min</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR(0,3) %</td>
<td>-0.5</td>
<td>9.5</td>
<td>43.23</td>
<td>-35.77</td>
<td>-0.84</td>
</tr>
<tr>
<td>CAR(0,5) %</td>
<td>-0.9</td>
<td>11.85</td>
<td>52.67</td>
<td>-41.89</td>
<td>-1.22</td>
</tr>
<tr>
<td>CAR(0,7) %</td>
<td>-1.34</td>
<td>12.85</td>
<td>45.4</td>
<td>-49.29</td>
<td>-1.67</td>
</tr>
<tr>
<td>PCAR(%)</td>
<td>3.38</td>
<td>20.96</td>
<td>128.23</td>
<td>-43.02</td>
<td>2.58</td>
</tr>
<tr>
<td>VOL(1,000 shares)</td>
<td>324.01</td>
<td>676.01</td>
<td>8,443.62</td>
<td>1.7</td>
<td>7.67</td>
</tr>
<tr>
<td>OWN(%)</td>
<td>26.93</td>
<td>17.95</td>
<td>95.7</td>
<td>0.4</td>
<td>24</td>
</tr>
<tr>
<td>TFR(%)</td>
<td>2.07</td>
<td>2.54</td>
<td>14.53</td>
<td>0.005</td>
<td>13.07</td>
</tr>
<tr>
<td>RTFR</td>
<td>3.17</td>
<td>7.81</td>
<td>73.8</td>
<td>2.4</td>
<td>6.49</td>
</tr>
<tr>
<td>CF/EQ</td>
<td>-0.18</td>
<td>1.07</td>
<td>1.3</td>
<td>3.4</td>
<td>-2.71</td>
</tr>
<tr>
<td>LSIZE</td>
<td>26.61</td>
<td>1.67</td>
<td>31.62</td>
<td>4.4</td>
<td>254.97</td>
</tr>
<tr>
<td>RATE(%)</td>
<td>12.47</td>
<td>74.53</td>
<td>476.31</td>
<td>-88.88</td>
<td>2.68</td>
</tr>
<tr>
<td>KOSPI_RATE(%)</td>
<td>4.18</td>
<td>69.71</td>
<td>318.07</td>
<td>-197.89</td>
<td>0.96</td>
</tr>
</tbody>
</table>

Note) 
RATE=(reissue – repurchase price) / repurchase price 
KOSPI_RATE=((reissue price – repurchase price) / repurchase price)-((KOSPI at the time of reissuing – KOSPI at the time of repurchasing) / KOSPI at the time of repurchasing)
Longer-Term Returns Compared: Reissues vs. Repurchases

The results from in Figure 1 for longer-term returns (i.e., 151 days) show a concave shape for reissues and a convex shape for repurchases. The market response to a reissue is almost the mirror image of the response to a repurchase. Returns are positive during the period before the announcement of the reissue and negative in the period after the announcement. One implication of these results is that the stock for a reissuing firm was overvalued (or at least not undervalued) prior to the announcement of the reissue.

**Figure 1**: CAAR% Compared: Repurchases vs. Reissues

![Chart showing CAAR% for Repurchases vs. Reissues](chart.png)

**Note:**
1) Relative date is the date relative to the event date which is the announcement of reissues or repurchases.
2) The starting point to compute (or cumulate) a CAAR (cumulative average abnormal returns) is the event date (0) in this study. In order to better compare and contrast the CAARs of the reissues with the repurchases, the CAAR is compute a little bit differently from the typical ones used in a event study in which the first day of window period (-60 in here) is used as a starting point to cumulate AAR (average abnormal returns).

Repurchases Followed by Reissues vs. Not Followed by Reissues

Table 3 also compares the announcement returns for repurchases subsequently followed by repurchases not followed by reissues. Repurchases that are followed by reissuues show stronger effects than repurchases that are not followed by reissuues. The results in Table 3 show that the AARs of the 3-day event window (0, 2) are positive with .001 level of statistical significance. Also notable in Table 2 are the negative and significant returns in the period before the announcement of the repurchase and positive returns after the announcements of repurchases. In other words, the disclosure effects of repurchases not followed by reissuues are generally similar to those of the repurchases with subsequent reissuues sample, although the magnitude is somewhat higher. The 4-day (0,3) CAARs are

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2 It is important to note that in conducting this comparison we are conditioning on information that could not be known with certainty by the market at the time of the repurchase. There are two reasons for making the comparison in spite of this limitation: 1) the comparison may shed light on ex ante differences between firms that reissue and firms that do not. 2) The market may be able to determine with reasonable accuracy firms that are likely to reissue.
3.385% in the sample without reissues versus 2.672% in the sample with reissues. Notably the CAARs in the period before announcement are more negative in the sample without reissues. In the (-20,-1) window the CAARs are -9.159% in the sample without reissues versus -5.902% in the sample without reissues.

Table 3: AAR%, CAAR% for Reissues and Repurchases Compared

<table>
<thead>
<tr>
<th>Dates</th>
<th>First-Time Reissues (N=149)</th>
<th>Non-First-Time Reissue (N=130)</th>
<th>Repurchases w Reissue (N=149)</th>
<th>Repurchases w/o Reissue (N=375)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AAR% t-value CAAR%</td>
<td>AAR% t-value CAAR%</td>
<td>AAR% t-value CAAR%</td>
<td>AAR% t-value CAAR%</td>
</tr>
<tr>
<td>-5</td>
<td>0.253 0.517 0.253</td>
<td>0.286 0.766 0.286</td>
<td>-0.367 -1.178 -0.367</td>
<td>-0.615 -1.95* -0.615</td>
</tr>
<tr>
<td>-4</td>
<td>0.709 1.448 0.962</td>
<td>-0.165 -0.442 0.121</td>
<td>-0.121 -0.388 -0.488</td>
<td>-0.951 -3.016*** -1.566</td>
</tr>
<tr>
<td>-3</td>
<td>0.626 1.278 1.588</td>
<td>-0.680 -1.822* -0.559</td>
<td>-0.471 -1.511 -0.959</td>
<td>-1.246 -3.951*** -2.812</td>
</tr>
<tr>
<td>-2</td>
<td>0.626 1.278 2.214</td>
<td>-0.288 -0.771 -0.847</td>
<td>-0.791 -2.538** -1.750</td>
<td>-0.862 -2.733*** -3.674</td>
</tr>
<tr>
<td>-1</td>
<td>0.605 1.235 2.819</td>
<td>0.539 1.444 -0.308</td>
<td>-0.132 -0.424 -1.882</td>
<td>-0.748 -2.372** -4.422</td>
</tr>
<tr>
<td>0</td>
<td>0.607 1.240 3.426</td>
<td>-0.363 -0.972 -0.671</td>
<td>0.945 3.032*** -0.937</td>
<td>1.305 4.138*** -3.117</td>
</tr>
<tr>
<td>1</td>
<td>-0.578 -1.180 2.848</td>
<td>-0.243 -0.651 -0.914</td>
<td>1.172 3.761*** 0.235</td>
<td>1.434 4.547*** -1.683</td>
</tr>
<tr>
<td>2</td>
<td>-0.003 -0.006 2.845</td>
<td>0.156 0.418 -0.758</td>
<td>0.659 2.114*** 0.894</td>
<td>0.532 1.687* -1.151</td>
</tr>
<tr>
<td>3</td>
<td>-1.173 -2.395** 1.672</td>
<td>-0.048 -0.129 -0.806</td>
<td>0.489 1.569 1.383</td>
<td>0.155 0.492 -0.996</td>
</tr>
<tr>
<td>4</td>
<td>-0.988 -2.018** 0.684</td>
<td>0.676 1.811* -0.130</td>
<td>-0.174 -0.558 1.209</td>
<td>0.114 0.361 -0.882</td>
</tr>
<tr>
<td>5</td>
<td>-0.198 -0.404 0.486</td>
<td>-0.159 -0.426 -0.289</td>
<td>-0.493 -1.582 0.716</td>
<td>-0.038 -0.120 -0.920</td>
</tr>
</tbody>
</table>

Note:
1) AAR and CAAR are in percent
2) ***,**,* are significant at .01,.05, and .10

Figure 1 also provides a longer period comparison of repurchases made by firms that later reverse some or all of their repurchase. The repurchase program seems to provide some help in boosting their stock price. The CAARs of the repurchase-reissue sample were negative 7% during the 60-day (-60, -1) pre-repurchase period. But because of the sharply positive returns over a few days immediately after the repurchases, the stock recovers most of the lost ground and shows close to zero returns for the entire period examined. These results indicate that the repurchases provide a very effective means to boost the stock price at least temporarily for firms that repurchased stock and subsequently reissued. The effects are similar in the sample without reissues, however the returns in the period before announcement are even more negative reaching -14% just before announcement.

In conclusion, strong and statistically significant negative announcements effects of repurchases were found in both samples. And as predicted, much cleaner and stronger negative pre-announcements effects and positive post-announcements effects were found in repurchases with no reverse firms. One implication of this finding is that the positive market responses to the repurchase announcements in non-reverse firms are more permanent than those firms later reversed.

First-Time vs. Non-First Time Reissues

Table 3 and the Figure 1 compare the market response to first time reissues versus repetitive reissues. As shown in Figure 1, the market responses to first time reissues (FTI) are more negative than the non-first-time reissue samples (NFTI). Table 3 shows that the CAARs after the disclosure of the first reissue are -2.135% for 5-day window (0, 4). For NFTI group, the effects are not significant and smaller in
magnitude, -0.498% for the 5-day window (0, 4). Another notable observation from the NFTI cases is that the CAARs in the pre-disclosure period are much less positive than for FTI group. In the (-20,-1) window the CAARs are 5.371% in the FTI group versus only 1.339% in the NFTI group. That result is somewhat unexpected. One possible reason is that the negative signaling effects are influenced by the previous or ongoing reissues, which produced negative effects during the reissue period and thereafter. Note that there is no blackout period for a reissue prior to this repetitive reissue.

In conclusion, strong and statistically significant negative announcements effects were found from FTI reissue sample, but only a weak empirical support of the signaling hypothesis is found in the NFTI sample.

Determinants of Market Returns Associated with Reissues

In order to further explore why FTI are quite different from the NFTI, we regress market returns against a number of proxy variables representing the hypothesized relationship suggested in the previous literature. We believe that the determinants of the FTI are different from the NFTI. Accordingly, we report the cross-sectional regression results for each group separately in Panels A and B in Table 4.

**Table 4: Cross-Sectional Regression: First-Time vs. Non-First Time Reissues**

**Panel A) First-Time Reissues (FTI)**

<table>
<thead>
<tr>
<th></th>
<th>intercept</th>
<th>PCAR</th>
<th>OWN</th>
<th>TFR</th>
<th>RFTR</th>
<th>CF/EQ</th>
<th>LSIZE</th>
<th>F-Value</th>
<th>R² (Adj. R²)</th>
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<tbody>
<tr>
<td>CAAR3</td>
<td>0.0816</td>
<td>-0.0651*</td>
<td>-0.00015</td>
<td>-0.2785</td>
<td>0.0024*</td>
<td>0.0057</td>
<td>-0.0031</td>
<td>1.28</td>
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<tr>
<td></td>
<td>(0.56)</td>
<td>(-1.67)</td>
<td>(-0.29)</td>
<td>(-0.62)</td>
<td>(1.69)</td>
<td>(0.93)</td>
<td>(-0.57)</td>
<td>(p=0.269)</td>
<td>(0.0122)</td>
</tr>
<tr>
<td>CAAR3</td>
<td>-0.00012</td>
<td>-0.0658*</td>
<td>-0.00012</td>
<td>0.19565</td>
<td>0.0007</td>
<td>-0.00009</td>
<td>-0.0023</td>
<td>0.96</td>
<td>0.0350</td>
</tr>
<tr>
<td></td>
<td>(-0.00)</td>
<td>(-1.68)</td>
<td>(-0.23)</td>
<td>(0.56)</td>
<td>(1.10)</td>
<td>(-0.02)</td>
<td></td>
<td>(p=0.446)</td>
<td>(0.0016)</td>
</tr>
<tr>
<td></td>
<td>0.0587</td>
<td>-0.0680*</td>
<td>-0.00014</td>
<td>0.0018*</td>
<td>0.0062</td>
<td>-0.0023</td>
<td>1.47</td>
<td>(0.204)</td>
<td>0.0527</td>
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<tr>
<td></td>
<td>(0.42)</td>
<td>(-1.76)</td>
<td>(-0.27)</td>
<td></td>
<td>(1.67)</td>
<td>(-0.46)</td>
<td></td>
<td>(p=0.168)</td>
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<tr>
<td></td>
<td>0.0443</td>
<td>-0.00018</td>
<td></td>
<td>0.0017</td>
<td>0.0080</td>
<td>-0.0018</td>
<td>1.05</td>
<td>(0.385)</td>
<td>0.0305</td>
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<tr>
<td></td>
<td>(0.31)</td>
<td>(-0.35)</td>
<td></td>
<td>(1.52)</td>
<td>(1.34)</td>
<td>(-0.36)</td>
<td></td>
<td>(p=0.014)</td>
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<tr>
<td></td>
<td>0.10974</td>
<td>-0.0471</td>
<td>-0.00042</td>
<td>-0.0069</td>
<td>-0.0041</td>
<td>0.00007</td>
<td>0.40</td>
<td>(0.402)</td>
<td>0.0455</td>
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<tr>
<td></td>
<td>(0.64)</td>
<td>(-1.02)</td>
<td>(-0.67)</td>
<td>(-0.96)</td>
<td>(-0.66)</td>
<td>(0.01)</td>
<td></td>
<td>(p=0.851)</td>
<td>(0.0018)</td>
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<tr>
<td></td>
<td>-0.0075</td>
<td>-0.0481</td>
<td>-0.00038</td>
<td>-0.0054</td>
<td>0.0020</td>
<td>-0.0024</td>
<td>0.87</td>
<td>(p=0.500)</td>
<td>0.0147</td>
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<tr>
<td></td>
<td>(-0.05)</td>
<td>(-1.04)</td>
<td>(-0.60)</td>
<td>(-0.97)</td>
<td>(1.54)</td>
<td>(-0.40)</td>
<td></td>
<td>(p=0.0226)</td>
<td></td>
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<tr>
<td></td>
<td>0.0509</td>
<td>-0.0545</td>
<td>-0.0004</td>
<td>-0.0056</td>
<td>-0.0020</td>
<td>0.74</td>
<td></td>
<td>(0.568)</td>
<td>0.0321</td>
</tr>
<tr>
<td></td>
<td>(0.31)</td>
<td>(-1.19)</td>
<td>(-0.63)</td>
<td>(-0.79)</td>
<td>(-0.36)</td>
<td></td>
<td></td>
<td>(p=0.586)</td>
<td>(0.0046)</td>
</tr>
<tr>
<td></td>
<td>0.0393</td>
<td>-0.00043</td>
<td></td>
<td>0.0019</td>
<td>-0.0041</td>
<td>0.74</td>
<td></td>
<td>(0.568)</td>
<td>0.0217</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(-0.68)</td>
<td></td>
<td>(1.44)</td>
<td>(-0.59)</td>
<td></td>
<td></td>
<td>(p=0.078)</td>
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</tr>
</tbody>
</table>
The regression results from Panel A show that PCAR and RTFR are significant in FTI, but these two variables are not significant in NFTI. Thus, it requires interpretation of the results on how the first time reissue is different from the second-time reissue. First, the coefficient of the PCAR is negative and statistically significant in (0, 3) window periods across all three models. Negative coefficient indicates that the larger the PCAR (usually positive), the smaller the CAAR (usually negative). In other words, the larger the increase in stock price prior to reissue, the greater the decline in stock price at the reissue announcements. Such results are consistent with the hypothesized relationship in this study; the magnitude of the PCAR (positive in value) is positively associated with the magnitude of CAAR (negative in value). The ‘signaling hypothesis’ in reissue context states that investors would interpret the manager’s decision to reissue as bad news; managers wanted to reissue because the stock was over-valued or at least not under-valued. Thus, the effects of the signaling would be just opposite to those of repurchase, the reissue version of the signaling hypothesis gets some empirical supports. In conclusion, results from the FTI sample appear to support the signaling hypotheses. That is, if the stock is fairly priced, the firm would want to reissue to enjoy the most benefits with boosted price. Similarly the firm may want to wait selling their treasury stocks until the stock price reached to its fair value unless they have emergent need for cash as in the case of shortage of working capital.

However in NFTI firms, none of these variables representing the H1 are statistically significant. As shown in Panel B, the results support the H2. Interesting enough, the variables like OWN and CF/EQ representing the H2 are significant in the regression from the NFTI firms. The statistically significant negative coefficients of CF/EQ and positive coefficients of OWN indicated that. With respect to CF/EQ, the results show that the CAAR was decreased with the increase in CF/EQ. The decrease in CAAR means it would be smaller in value (still negative but became lesser in value). In the repetitive reissue firms, the CAAR of the firms with larger/smaller CF/EQ would be lesser/larger (stock price decreased
more/lesser) at the announcements of reissue. The variable OWN, denoted as the fraction of shares held by the largest shareholder of the firm has a positive coefficient. Thus, the regression results from the NFTI firms did not support the H1, but they instead supported the H2. One implication of this finding is that the reasons for NFTI may be different from those of FTI.

SUMMARY AND CONCLUSIONS

In this paper, we made use of Korea’s unique regulatory conditions to examine how the market reacts to two conflicting signals that are executed in sequence. Firms in Korea can conduct an open market repurchase and, after the waiting period, reissue the stock which effectively reverses the repurchase. Korean firms are required to announce repurchases to the public and complete the repurchase within a three month period. At the end of the three month period, the firm must disclose detailed information about the repurchase, including the number of shares actually repurchased. Some Korean firms also conduct a reissue that effectively reverses some or all of the effects of the repurchase. The regulations regarding the reissue process are essentially a mirror image of the repurchase process. The reissue must also be announced publicly and completed within three months. Companies must disclose detailed information about the reissue at the end of the reissue period as well.

Due to this regulatory structure, we were able to identify a sample of firms that announced and actually conducted an open market repurchase. Some of these firms then announced and conducted a reissue that essentially reversed the repurchase. Generally, a repurchase is considered to be a positive signal while an equity offering such as the reissue is considered to be a negative signal. Thus we examined the firms were sending opposing signals to the market by engaging in both the repurchase and reissue.

Our findings suggest that the market reactions to the reissue announcements are essentially the mirror image of the reactions to the repurchase announcements. In other words, the market reacts positively to the repurchase announcement and negatively to the reissue announcement. The market’s reactions to these opposing signals are in accordance with the existing literature, thus, the H1 is supported in both direction, i.e., positive in repurchases and negative in reissues. We also found that the market responded similarly to firms that reissued their repurchased shares when compared to the control sample of firms that did not conduct a subsequent reissue. In both groups, the market responded positively to the announcement of repurchases.

The market responded differently to the reissues in the first-time and non-first time reissue samples. While there was a significant negative reaction to the announcement of the reissue in the first-time sample, there is almost no market reaction to the reissue announcement in the repetitive sample. Our results indicate that the H1 and the H2 better explain the motivation of FTI and NFTI, respectively.

The contribution of this study is that this study revisited the signaling hypothesis in the context opposite to repurchases to find that the (reverse) signaling hypothesis alone cannot explain the whole pictures of stock reissues (or reversed repurchases) and that the window of opportunity hypothesis can also explain certain types of reissues (i.e., repetitive reissues). This limitation of study, however, is that this study does not explore the reasons why the firms decided to repeat reissues. For instance, extant literature (Baek et al., 2006) suggest that tunneling as a form of managers’ opportunistic behavior is likely to happen in a certain circumstances by Korean business group firms in which managers also have controlling ownership. Such research question is an issue of empirical interest, thus, it is worth to pursue in a further study.
REFERENCES


A PRACTICAL PERSPECTIVE OF CONTINGENCY LEADERSHIP THEORY

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ABSTRACT

One of the challenges of being a leader in an organization is motivating workers to perform at an acceptable level. Leadership is more than just a simple additional duty that a person must complete. Fred Fielder (1967) opines that leadership is a necessary skill needed for controlling others in task accomplishment. Situational leadership focuses on the leader’s ability to adjust his or her leadership style, depending upon the situation, and the commitment level of his or her followers. Situational leadership seems easy to understand. How could one not believe that situational leadership is effective, even if the research is lacking? After all, we generally understand that different employees require different leadership styles, and that we adapt our leadership style to fit our constituents the best. This paper compares and contrasts various leadership theories along with some of the criticisms of situational leadership theory. Through various informal interviews and some formal interviews, the author expresses and provides some support for the use of situational leadership.

Keywords: Leadership, Theory, Situational, Contingency

INTRODUCTION

One of the challenges of being a leader in an organization is motivating workers to perform at an acceptable level and then try to get the employees to perform above that level. Leadership is the process of leaders influencing individuals or groups in goal attainment (Northouse, 2001, p. 3). Edwin Locke (1991, p.2) defines leadership as “…the process of inducing others to take action toward a common goal.” Because leadership is a process, “…it is not a trait or a characteristic that resides in the leader, but is a transactional event that occurs between the leader and his or her followers” (Northouse, 2001, p.3). It is relational in that without followers, leadership does not exist and it is a process in that before we can lead, we have to have something to do and someone to do it (Locke, 1991). According to Fred Fielder (1967), leadership is a necessary skill needed for controlling others in the accomplishment of their individual tasks.

LITERATURE REVIEW

In his book, Ben Franklin’s Twelve Rules of Management, Blaine McCormick (2000, p. 48) relates that, “Influence is more important than victory.” He lists three steps leaders can follow in dealing with workers. (1) “Know your reasons and yourself,” (2) “Assume you might be wrong,” and (3) “Listen to the other person’s position, and clarify your understanding with questions” (McCormick, 2000, pp. 52-53). To be a good leader, one must know oneself. In knowing yourself, you need to have the knowledge and skills to adapt to a given situation. A leader must be able to assess his or her strengths and
weaknesses, and then take the appropriate action to capitalize on the strengths and improve the weaknesses. It is very important to realize that one may not be correct all of the time. However, perhaps the most relevant piece is in listening to the other person’s position. This is where the concept of Situational Leadership really comes into play. A leader must know the position of his or her constituent, especially in relation to the follower’s willingness and ability to accomplish assigned tasks. McCormick further asserts that leaders should, “…stop feeling and start reasoning” (p. 86). Feeling is personal, while reasoning is intellectual. Eliminating feelings makes the leader’s job easier because his or her constituents can understand reasoning far better than they can understand someone else’s feelings. When we eliminate feelings in leadership, we are in essence becoming situational leaders; we are adapting to the situation. The following descriptions of various leadership theories provide a basis for the intended research.

**Situational Leadership Theory**

Situational leadership focuses on the situation in which the leader finds him or herself in relation to his or her followers. Different situations call for the leader to use different tactics (Northouse, 2001), contingent upon the readiness level of the followers (Robbins & Judge, 2008). This model focuses on supportive and directive behaviors of the leader, emphasizing the leader’s role in delegating, supporting, coaching and directing (Blanchard, Zigarmi & Zigarmi, 1985). A leader should adjust the degree of directing and supporting dependent upon the changing needs of his or her constituents (Northouse, 2001). An effective leader is one who can adapt his or her leadership style to the needs of the employees (Northouse, 2001). Directive behaviors transpire when the leader is telling the employees what to do, what goals to accomplish, and the methods of evaluating the employee’s performance. Supportive behaviors, on the other hand, emerge when the leader is helping the employees to feel good about themselves and their performance, along with feeling good about their work and their coworkers (Northouse, 2001, p. 57). In essence, situational leadership tells leaders to treat each worker differently depending on the task, as well as on the willingness and readiness of the worker to accomplish the task. Leaders need to help his or her employees in developing the necessary skills to perform their job, thus developing confidence and commitment in their jobs (Northouse, 2001. p. 61).

**Contingency Theory**

The traditional leadership theory views leadership as one person having an unequal amount of power over another or group of others, than the others have over him or her to direct and control the actions of the others (Fielder, 1967). In developing his contingency theory, Fielder explains that, “…the [new] theory postulates two major styles of leadership. One of these is a leadership style which is primarily task oriented, which satisfies the leader’s need to gain satisfaction from performing the task. The other is primarily oriented toward attaining a position of prominence and toward achieving good interpersonal relations” (Fielder, 1967. p. 13). Interestingly, Fielder thought it necessary to explain the difference between a successful leadership act and an effective leadership act.

A successful leadership act is defined as one which results in group action or some appropriate change in group behavior. The effective leadership act results in a desired effect. A good leader-member relationship will lead to a greater proportion of accepted or successful leadership acts, while a poor leader-member relationship will lead to a relatively small proportion of successful leadership acts. However, the effectiveness of the leadership act is
not dependent upon the leader-member relations. Rather, it depends upon the appropriateness and wisdom of the suggestion or the order which the leader has given (Fielder, 1967. p. 31).

Measuring effort is subjective. For example, doing pushups and straining on purpose to give the illusion that you are trying demonstrates some subjectivity. The author recalls being in the Army and watching an individual doing pushups during a physical fitness test. After a while the individual started to shake, his face was turning red and veins were popping out from his face. He then collapsed stating that he could not do any more pushups. For all practical purposes, it appeared that the individual was trying hard to do more pushups, but had reached his physical limitation. In other words, he appeared to be putting forth great effort. However, the author later learned that the individual did not want to do more pushups and brought these physical characteristics on himself to make it appear that he was still trying. Therefore, it is sometimes difficult for leaders to know when effort is truly present, or if it is merely an illusion on the worker's part.

Fielder’s Contingency theory is based on two premises; that group effectiveness depends on having the proper match between a leader’s style of leadership and the degree of control the leader has over the situation (Robbins & Judge, 2009). The degree of control includes (1) leader–member relations, which includes the degree of trust and confidence the workers have in the leader; (2) task structure, which is the amount of structure or non structure in the jobs the workers are performing; and (3) and position power, which is the degree of formal power the leaders has of his or her constituents (Robbins & Judge, 2009). The leader is in a more favorable position when he or she has a high amount of control, the workers have a lot of respect for the leader, and the tasks the workers perform are highly structured. The key to Fielder’s Contingency Theory is that leaders are the most successful when we match the job to the leader’s style (Robbins & Judge, 2009).

Path Goal Theory

Robert House (1971) indicates that worker motivation is a direct result of leaders assisting the worker in goal accomplishment. The leader can increase worker motivation by clarifying goals, clarifying the worker’s path toward a reward or by increasing the value and desire of the reward. Path-goal theory assumes that leaders can change their behaviors to match the specific situation, where Fielder’s Contingency Theory assumes that we change the leader to match the situation.

Expectancy Theory

Expectancy theory relates that motivation of individuals relies more on their own expectations than the leader’s ability to adapt to any specific situation or contingency (Robbins & Judge, 2009). However, the expected rewards do come from the leader and the worker needs to see the value in the reward for him or her.

The central concept of expectancy theories is that the force on an individual to engage in a specific behavior is a function of (1) his expectations that the behavior will result in a specific outcome; and (2) the sum of the valences, that is, personal utilities or satisfactions, that he derives from the outcomes. Thus according to this theory of motivation, an individual chooses the behaviors he engages in on the basis of (1) the valences he perceives to be associated with the outcomes of the behavior under consideration; and (2) his subjective estimate of the probability that his behavior will indeed result in the outcomes (House, 1971, p. 322).
For the expectancy to exist, the worker must have the knowledge, ability and experience to perform at the necessary level, which will result in the worker arriving at the desired outcome. The higher the value the workers place on the reward the more effort and motivation the worker is willing to put forth. The worker must feel that the effort put forth will result in the promised reward and he or she must value the reward. Otherwise, there is no motivation for the worker to try to accomplish the goal.

**Equity Theory**

Equity Theory is another factor in employee motivation. Developed by J. Stacey Adams, Equity Theory speculates that equity exists when an individual believes that the ratio of his or her outcomes to inputs is equal to another’s (Daft, 2008). For example, consider a worker performing at what he or she regards as a high level of input in order to receive a specific reward, or output for his or her performance. If a second individual is putting forth less effort, or input, but is receiving the same reward, the first individual will see this and inequitable. Equity theory focuses more on individual perception of inputs to outputs than on the leader’s style, but the leader is monitoring inputs and outputs of all the employees under his or her charge. Therefore, the follower might also perceive inequity with the leader because of the difference in inputs and outputs between similar coworkers.

**Theory X and Theory Y**

Douglas McGregor explores a different side of leadership with his presumptions of Theory X and Theory Y. Theory X is a management perspective that assumes employees are inherently lazy, have little ambition, dislikes work, and must be forced to put forth effort, while Theory Y assumes quite the opposite. (McGregor, 1960, pp. 33-34) Theory X supervision begets Theory X behavior and Theory Y supervision begets Theory Y behavior. In other words, the supervisor’s leadership ability drives worker behavior. Therefore, McGregor’s theory indicates that leadership is situational in that worker behavior is a direct reflection of the leader’s actions. It is situational in this context based on the perception of the leader, rather than the willingness and ability of the follower. However, the willingness and ability of the follower has a direct co-relation to the style of the leader. In essence, McGregor’s Theory X and Theory Y model seems to be more of a hybrid of the Contingency model.

Theory X leadership is not situational as there is little relation between the leader and follower in terms of meeting the needs of the follower. It is all about the leader. Theory Y, however, is situational in that the leader is more adaptive to the follower. In other words, the Theory Y leader would have a much easier time adapting to the situation than would the Theory X leader. Conversely, McGregor acknowledges situational leadership in other areas as well. For example, in his paper On Leadership, McGregor made this observation:

> Before coming to Antioch[,] I had observed and worked with top executives as an adviser in a number of organizations. I thought I knew how they felt about their responsibilities and what led them to behave as they did. I even thought that I could create a role for myself that would enable me to avoid some of the difficulties they encountered. I was wrong!

(McGregor, 1966a, p. 67)

What McGregor was referring to was that he really did not know what these leaders were experiencing. He found himself in a position where he thought he could use a hands-off or laissez-faire approach to leadership, but found that he instead had to be very involved in what was going on at the University. In other words, he was a situational leader.
Transformational Leadership

Transformational leadership, occurs when leaders stimulate the interests of their followers, increase awareness and acceptance or the organization’s mission, “...and when they move their followers to transcend their own self-interests for the good of the group” (Seltzer & Bass, 1990, pp. 693-4). Transformational leaders are also charismatic (Bass, 1990, p. 19). The transformational leader must sell his or herself at the same time he or she is selling the vision and mission of the organization to the followers. While transformational leadership is effective, organizations need to use some caution in using this style of leadership. For example, the passion and confidence the leader displays may easily be mistaken for reality. Passionate and confident leaders have the same ability to lead an organization into the ground, as does a leader with less passion and confidence. A transformational leader can also hurt the motivation of followers over time because the followers cannot exhibit the same drive for long periods of time that the leader can provide.

Charismatic leaders though, may not be what they seem. For example, constituents can follow a charismatic or transformational leader off a cliff just as easily as they can follow a transactional or any other leader off a cliff. Just because the leader exhibits a strong vision, is inspiring, stimulates intelligence and provides followers with his or her personal attention (Bass, 1990), does not mean that he or she is taking the organization in the right direction. In addition, what happens when the transformation leader leaves the organization? Bass (1985) and others credit Lee Iacocca with saving Chrysler Corporation from bankruptcy, and rightly so. Iacocca was or is a transformational leader and is charismatic. However, was the fix that Iacocca provided to Chrysler only temporary? Could the problems Chrysler is experiencing in 2009 be attributable to Iacocca’s leaving Chrysler? Could having a powerful transformational leader come into an organization, fix things and then leave, make matter worse in the long-term?

PURPOSE OF STUDY

Situational leadership focuses on the leader’s ability to adjust his or her leadership style depending upon the situation and the commitment level of his or her followers. If employees are relatively new to the job, or lack training, the leader needs to use a more directive, or coaching style. If the employees have been on the job for some time, are experienced and reliable, and the leader should use more of a supporting, or delegating style (Blanchard et al, 1985, p. 46). It is the author’s intention to show that situational leadership theory may be the best style of leadership to use in motivating employees.

METHODS

Over several years, the author informally discussed various leadership styles and traits with leaders in many different leadership positions. The results of these informal discussions, led the author to conduct formal interviews with four leaders to gather anecdotal evidence on leadership theories. The author selected four leaders who had extensive leadership experience in business and either the military or a health care setting. In addition, each of these leaders is currently in high-level leadership positions at the University level. The reason for selecting these leaders is their current positions and their backgrounds. The author interviewed each of the four leaders at their respective offices. The author asked a series of interview questions of the leaders to determine how they adjust their leadership style to various situations.
The author first asked about how each of the leaders perceived the difference between leadership in the military, business or healthcare, as compared to academia; followed with questions comparing leadership and management, and the importance of being a follower before becoming a leader. The author then asked questions related to leader adaptation and how each of the leaders dealt with poor performers.

**Leadership Questions**

1. You have had leadership experience in both the military and in academia, or in academia and healthcare. How do you see the difference in how you have to approach people in the different arenas, because in the military you have more control? How do you see the difference in how you have to approach leadership between the military, in the education area, healthcare or in business?
2. Do you think we are becoming more managers as opposed to leaders?
3. Do you think that before you can be a leader, you have to be a good follower?
4. Do you think that the leader adapts to the subordinate, or does the subordinate adapt to the leader?
5. How do you deal with poor performers? Poor performers are inherent to every organization. You have stellar performers and you have the ones who just do enough to get by, and then you have the ones who are not always up to standard. How do you deal with the latter?
6. One of the issues I have had in the past, being the subordinate, is when a leader would tell me that I am not performing up to standard, but could not tell what I needed to do in order to meet the standard. To me, that shows that you have a person in a leadership position that really is not a leader. At the same time I think that perhaps that is why some of the leaders have the central tendency to rate everybody down the middle. How can we develop these leaders? How can a leader learn what he or she needs to know to do these things, to tell those people what they need?
7. I think, no action at all is more the norm for the majority as we have an inherent laziness and that we get comfortable with the way we are doing things. How do we implement change in the organization, while keeping the employees motivated and on track?
8. Much of the literature today tends to focus on finding solutions, rather than placing blame. However, I think for the most part we talk a good game about finding solutions, but our actions are indicative of placing blame. How do we make a firm commitment to finding solutions and leaving the blame out of the equation, or do we need to do so?

**Subjects**

Leader 1 is a 58-year-old male. He spent nearly 30 years in the US Army retiring with the rank of Major. He has spent time teaching High School and is currently the Campus Director for a private University. This leader’s selection was because of his extensive leadership experience in the military, business and academic arenas. His insight is valuable in supporting my hypothesis that leadership delivery differs in these areas, even if the leadership styles are the same.

Leader 2 is a 58-year-old male. He spent twenty-three years in the U. S. Army retiring with the rank of Lieutenant Colonel. He has performed various roles in the military and in academia, and is currently the Regional President of a private University. This leader’s selection was because he has extensive leadership experience in the military, business and academic arenas. He has always seemed to be a fair leader and one who cares for the welfare and development of his subordinates. Therefore, his
insight was invaluable in supporting the hypothesis that leadership delivery differs in these areas, even if the leadership styles are the same.

Leader 3 is a 61-year-old male. He spent three years in the U. S. Army leaving with the rank of Captain. He has performed various roles in the military, in Health Services Management and in academia, and is currently the Chair of the Health Sciences Program for a private University. The selection of this person was due to his extensive leadership experience in the military, health services and academic arenas. His insight would be valuable in supporting the author’s hypothesis that leadership delivery differs in these areas, even if the leadership styles are the same.

Leader 4 is a 58-year-old male. He spent the majority of his career in health care, and is a Medical Doctor and has a PhD in Medicine. He performed in various roles in the academia and health care arenas and currently performs as the Chair of Surgical Technology, as well as the Clinical Director for the School of Health Sciences. His selection was because of his extensive leadership experience in health care and academia.

RESULTS

Each of the leaders interviewed provided good examples of how they adjust their leadership style to the situation and to the individual abilities of his constituents. Initially, each leader stated that there was no difference in the leadership style used in the different areas. However, it became apparent during the interviews that each of them was adapting his style depending upon the willingness and ability of the subordinates, and the situation. In addition, the author informally interviewed many other military and civilian leaders finding similar results. For the most part, it seems apparent that a combination of the various styles is necessary for the leader to be effective. The leader adapts to the situation and employees (Situational Leadership Theory), matches the leader to the optimal situation (Contingency Theory), and must set clear expectations for his or her followers (Path Goal Theory).

DISCUSSION

As previously mentioned, Edwin Locke (1991, p.2) defines leadership as “…the process of inducing others to take action toward a common goal.” In addition, we can define leadership as our attempt at influencing another person’s performance (Blanchard et al, 1985). When a person is not meeting expectations, it is generally because he or she cannot, or will not perform at the acceptable standard. Blanchard, et al (p. 49) refers to this as competence and commitment problems. “Competence is a function of knowledge and skills, which can be gained from education, training, and/or experience. Commitment is a combination of confidence and motivation” (Blanchard et al, 1985, p. 49). The lack of confidence and motivation ties in with McCormick’s comments on admitting you might be wrong and listening to the other person’s position (p. 86). You have to demonstrate your own competence, while at the same time showing your confidence in your constituents. You can fix competence problems through training and commitment problems through motivation. However, as the leader, you must be able to identify which problem exists and then adapt the appropriate strategy to remedy the situation.

Criticisms of Situational Leadership

Northouse (2001, pp. 61-63) outlines six different criticisms that focus on the weaknesses of situational leadership in relation to Blanchard et al’s research.
A Practical Perspective of Contingency Leadership Theory

(1) There have not been enough studies on situational leadership to justify the findings. Although true, it seems obvious that most leaders do adjust to the situation. If a leader cannot adjust to the willingness and ability of his or her subordinates, the leader’s ability to accomplish the mission is at risk.

(2) The ambiguity of the subordinate’s development levels. The problem is that it is difficult to determine developmental levels. While true, the leader can tell if the constituent is performing the tasks to the standard. When this happens, then adjustments need to occur to get the worker to the proper level of development and performance.

(3) The ambiguity of the commitment level of the subordinates, as the authors do not clearly define the term commitment. Commitment is difficult to define due to its being a two-way process. The employee has to have commitment to the employer and the employer must have commitment to the employee. As employee’s, we will only commit to those, and perform to the best of our ability for those who commit to us and willingly provide us with fair compensation for our efforts.

(4) The clarity, or lack there of, of how the leadership style relates to the subordinates development level. Leaders are not the only factor that comes into play with employee development. The employee also has some responsibility in his or her performance. However, the leader must ensure that the employee is performing at the acceptable standard.

(5) The models failure to address group leadership along with one-on-one leadership. Group leadership brings about a different scenario. The leader must keep the group together, while motivating the individuals within the group. If the individuals are willing and able to perform their tasks, group leadership becomes easier.

(6) The questionnaires used in the research focused only on asking the respondents to select the best leadership style for a particular work-related situation. Ergo, the questionnaire may have biased the responses due to their being no other choices. Although there is merit to these criticisms, there are still many supporters for situational leadership as well.

Support for Situational Leadership

Situational leadership seems obviously easy to understand. How could one not believe that situational leadership is effective, even if the research is lacking? After all, we generally understand that different employees require different leadership styles, and that we adapt our leadership style that best fits the constituent. That is just as situational as the tasks the workers are performing, or the objectives the leader is looking to complete. Of course, the Theory X leader will use only one style for all workers, that being the authoritative style. The employees who are self-directed and intrinsically motivated will soon become disgruntled with this type of leader and will leave the place of employment, or if they are not strong enough, may lose their motivation and become the worker the Theory X leader prefers. On the other hand, workers are also at different developmental levels and thus require different approaches to leadership. (Blanchard et al, 1985, p. 60) It does not take much supervision to lead workers who demonstrate a high level of skill, but the rookie needs more direction. “Successful leaders are those who can adapt their behavior to meet the demands of their own unique environment” (Hersey & Blanchard, 1974, p. 27).

Interestingly, upon beginning to interview this sample of four leaders (Personal interviews with Leaders 1, 2, 3, & 4, 2007) and asking questions about how they might need to lead differently in the military, academia or health care settings, all responded the same; that there is no difference. However, during the interview, it was clear that they were all using situational leadership and found it necessary to adjust their leadership styles depending on the subordinate, the situation, or the tasks the subordinates were performing. Leader 2 (2007) summed it up best saying, “…I think the military, civilian, or anything, if you
know what you’re doing, you give the guidance, you care about the people, and they know you care about the people, I don’t think the leadership is much different.” One conclusion that might come from the interview is that all of the leaders felt their leadership styles were effective across the areas, but the specific situations dictated a change in venue. It did not matter if it was a military setting, an academic setting, or a health care setting the leadership style remained steady until a specific situation warranted another approach. Leader style changed on a case-by-case basis. This reinforces the fundamental definition of situational leadership (Blanchard et al, 1985) in that, leadership is something you do with your subordinates, rather than something you do to them. At no time did any of the leaders mention changing the leader to meet the situation; rather the leader’s style would change. Leader 1 (2007) provided a story of a government organization he was in charge of that was going to downsize and merge with another organization out of state. He reinforced the importance of situational leadership and the need to be honest and up front with his constituents in what was going to happen. In addition, he kept them apprised of all changes and became the rumor control officer to help keep the employees aware and up to date. In the end, the transition was smooth and some of the workers who were reluctant to move initially, made the move to the new state when the change was complete. Leader 1’s caring attitude and his willingness to adapt to the situation and the workers contributed to the overall success of the change. Additionally, his understanding the commitment and competence levels of his subordinates helped him in adapting to and addressing their individual needs.

During the interviews, the author found some commonality in how the leaders approached leadership and performance. Blanchard et al outlined this commonality the best by stating, “There are three parts to performance review: Performance Planning, Day-to-Day Coaching, and Performance Evaluation” (1985, p 86). All four leaders felt it important to establish a performance plan and set goals for every employee. They also felt that coaching is an ongoing process and without the coaching, a leader cannot hope to influence his or her employees to perform to their full potential. If the leader properly implements and manages the performance plan, performance evaluations should be positive.

Another area all of the leaders agreed upon was in disciplining the poor performer. Each looked at establishing some type of performance improvement plan to aid the worker in improving his or her performance to an acceptable level. In addition, all of the leaders agreed that at some point, the best decision to make for the worker, the organization and the leader, is to let the person go. Termination is of course the last resort, but a resort that the leader cannot be afraid to take. Termination is a situation that the leader must be deal with. In building support for transformational leadership, Bass (1990) states that the use of transactional leadership will result in mediocrity at best, especially for leaders who manage-by-exception, becoming involved only when his or her constituents are not meeting standards. While true, taking an approach that a leader only becomes involved when things are going awry is a backward strategy to begin with.

**CONCLUSION**

Fielder’s Contingency theory seems to focus more on adapting the situation to the leader, focusing more on the leader than on the follower. House’s Path-Goal Theory focuses more on the leader taking the necessary steps to cause the follower to accomplish the goals set by the leader. Both focus on the needs of the leaders. Expectancy theory and equity theory both focus on the follower; how the follower perceives the work situation. Hersey and Blanchard’s (1974) Situational Leadership Theory focuses on both the leader and the follower. Rather than adapting the situation to the leader, the leader is adapting to the situation; more specifically, the situation as it relates to the readiness and willingness of the
There is no one best way to lead, but to be effective, the leader must be capable of adjusting his or her leadership style depending on the skills level and experience of the followers. A good leader will switch naturally between various styles of leadership that will best fit the situation and the subordinates.

The most notable commonality was the relationship the leaders felt it necessary to develop with their subordinates. McGregor reinforces this philosophy in his paper, An Analysis of Leadership, stating, “Leadership is a relationship” (McGregor 1966b, p. 73). McGregor (1966b, p. 73) further asserts that, leadership is not something that one owns. A leader cannot own leadership. Leadership by definition is “...a complex relationship among...four major variables...characteristics of the leader, the followers, the organization and “...the social, economic, and political milieu.” Again, leadership appears to be more situational and dependent upon the followers, than leader focused. It is also relational. Leaders need to understand that their leadership style or method of delivery may need adjusting based on the current situation. If the workers are at different levels of development, then different methods of leading are required (Blanchard et al, 1985, p. 60).

Although there may not be support for the use of Situational Leadership as presented, it is clear that leaders do need to adapt to the situation. Therefore, situational leadership is crucial in any successful organization. The use of situational leadership may not be because of the specific situation, but the difference in the individuals with whom the leader is working that dictates its use. While the military, academia, or business leadership styles may be the same, the application to individuals still differs.

Since this is an anecdotal study, to test the waters, the author finds sufficient evidence to expand the research in different ways. First, the author will create scenarios involving four or five different situations to present to the subject leaders in a future study. The author will then assess the responses of the leaders to determine if in fact they are using one of the contingency theories of leadership by changing their leadership style to fit the situation, or if the leader is merely stating how he or she wants to perform. It is possible that leaders state that they adapt to the situation, but in practice revert to either a Theory X or a Theory Y style (McGregor, 1961). Using the different scenarios, along with expanding the subject pool of leaders in the study should provide empirical evidence that leaders do adapt to the situation.

REFERENCES


TOWARDS STRATEGIC MANAGEMENT OF STANDARDS ACTIVITIES IN THE INTERNATIONAL BUSINESS

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ABSTRACT

There is a considerable interest and debate over the effectiveness of culture upon standardization in the international business (IB), and a growing awareness that the term ‘standards’ connotes much more than just the documents that prescribes technical requirements and specialized test methods that demonstrate compliances. A Quasi-experimental design is used to test a series of hypotheses based on a sample of Indian and Arab employees in the UAE. It is found that despite the existence of cultural differences at the ethnic level, culture does not appear to have a significant impact on (ST) decisions by management.

This study aims at verifying whether there are any relationships between cultural dimensions and standardization (ST). The researcher believes that (ST) as a strategy may be different from being cultural concept, but understanding cultural differences may increase a company’s competitiveness. The study also provides evidence which further validates a scale used for the measurement of culture.

Keywords: Standards, Standardization, International Business, Culture, Management Strategy.

INTRODUCTION

Standards are now gaining higher recognition as the non-prejudicial methodology to achieve greater firms and consumer benefits. In marketing standards are one of the best marketing tools ever conceived as standards generally go unnoticed. They are mostly quite, unseen forces such as specifications regulations and protocols that ensure that things work properly, interactively, and responsibility (Dyer, Kale, and Singh, 2001). Therefore, they will pay an expanding role in the field of business in general and in IB in particular (i.e., manufactured goods, to commercial fields and to many other new fields). With this belief, it becomes evident that provision must be made for the orderly development of standards (Smith, 2003). Also, (ST) per se is the basic key to all technical and industrial progress and trade. Thus, they will ultimately affect the production of goods and services.

Managers were concerned about the risks that surround placing comprehensive and critical tools in the hands of capable people when there are no guidelines in place to ensure that the tools are effectively used. Therefore, most managers understand that (ST) is a critical step in establishing necessary guidelines, and is essential to a strategic competent policy deployment. They also understand the benefit that business competency can provide for them, and increased transparency of information throughout the organization, (George, 2004).

In this context strategic management is a methodology to employ, and to effectively manage and control standards – related activities. The firm, it recognizes (ST) as a viable competitiveness strategy.

Also, facilitators for a change, integrate economic concerns into technical harmonization (Ellram et. al, 2002). The importance of standards in a global economy is well understood by major European and Asian companies, and in the United Arab Emirates, companies in some industries appear to be logging.

The widespread employment of foreigners in UAE’s open economies has sparked considerable interest and debate over (ST) effectiveness. This situation may suggest that there are conditions and factors that can influence the effectiveness of standardization.

In a culture that has an impact on many aspects of individual behavior and innovativeness, it has also been suggested that an understanding of culture can assist in making decisions such as whether to pursue standardized or localized strategies, something that has been discussed in the context of retailing strategies, (Mooij and Hofstede, 2002). Such finding suggests that there are conditions and factors that can influence the effectiveness of the standardization's decision making. Furthermore, although developed for cross-country comparison, Hofstede's dimension are believed to be capable for explaining intra-country variations, (Au, 1999), even at an ethnic group level.

Indeed, central to any ethnic group is a set of cultural values, attitudes and norms. Each ethnic group constitutes a unique community because of common culture. Thus, the study by ethnicity within a domestic context is feasible and appropriate since each ethnic group will have its own unique set of cultural values, (McGrath, Furrier, and Mendel, 2004). In fact, it has been suggested that intra-country variations of culture can be as large as the variation across countries, (Warner, and Joynt, 2004). Given the potential relevance of culture, a basis is required for assessing its impact on standardization.

A corresponding strategic view will help companies to operate better in a global environment. Businesses must pay closer attention to standards matters in order to insure that they will be able to compete on a playing field that is more level. Many standards issues are becoming more company or industry wide, such as quality, environmental, services, and electronic-data interchange, (Kotabe, Srinivasan, and Aulakh, 2002). Continued participation in standards activities and strategic management are needed to avoid standards that add cost but do not add value. This paper explores and extends a consistency framework by incorporating the impact of culture with standardization of strategic management in the IB. However, there is limited empirical research focusing on culture at an ethnic-group level and its impact on (ST).

The purpose of this study is to investigate cultural differences at this level, and to gauge the impact on the consistency framework of (ST) effectiveness. The study was undertaken in the UAE. As in many nations, an increasing use of foreign employees by a diverse ethnic mix of non-national employees is being made. This study makes several important contributions to strategic standardization and management model, and emphasizes the significance of standards in the global economy. The study is one of the few pieces of research in management strategy that empirically measure culture at an ethnic-group level. The study provides insights to management practitioners in the design of standardized management strategies.

It is not the intent of the researcher to develop a model of competitive advantage to assess an organization’s strategy regarding (ST) and standards. On the other hand, the paper is intended to assess if there is a relationship between culture and standardization.
STRATEGIC STANDARDIZATION MANAGEMENT ISSUE

Organizations' management believes that standards will have an ever-increasing importance. Thus, they will ultimately affect the production and sales of all goods in local and global markets. Bearing this belief in mind, it becomes evident that provision must be made for the orderly development of standards. There is a clear need for standards, and a greater attention should be devoted to that. Standards are not only employed strategically as a business tools, but they also serve to interconnect economic activities. An inadequate support for the standards settings process will have serious detrimental effects, therefore, the benefits of standards and the potential impact of (ST) on global commerce should not be neglected, (McGahan and Silverman, 2001).

Managers were concerned about the risks that surround placing comprehensive critical tools in the hands of capable people when there are no guidelines in place to ensure that the tools are effectively used. Thus, the majority of them were engaged in standardization activities, (Avery, 2002). To those managers (ST) are a critical step in establishing necessary guidelines, and essential to a strategic management development.

Improving business process was one imperative behind this drive. What else is a better way to improve processes than to be able to provide that venerable. Such strategic management approach also reduces risks of project failure, and it reduces costs through consistent support, training, and maintenance, (Douglas, Craig, and Nijissen, 2001). It may also gain executive confidence in the data and tools of business. Furthermore, a higher confidence in the executive ranks will be translated into more confidence in strategic decision making. Another benefit was the process and information integration in a world of constant mergers and acquisitions.

On the flip side, standardizing has some obvious costs. First, not having one version of the truth leads to wasted money attempting to reconcile data. Second, in the IB standardization as strategic tools for management, it remains as levers used at the tactical level for each department in the organization. Global business is changing to keep pace with unprecedented changes in political conditions and the market place, (Samuelson, 2004). As the market place becomes more globalize, the ability of organizations to respond rapidly is critical to being internationally competitive. Strategic standardization management is an important asset in helping businesses to achieve international market penetration goals. Its approach is already a priority in a few large, successful international corporations but may not be explicitly recognized as such. This is so because it has evolved as a pragmatic approach to sustain technology advancements and to open up market entry, both domestic and foreign. By developing a strategic standardization assessment model, an organization analyzes the importance and relevance of (ST) to its operations (Shilling and Hill, 1998). A rough strategic model firm may evaluate all (ST) activities related to the organization's businesses and then provides a process for defining, communicating, and implementing appropriate strategic plans and policies to enhance competitive advantages, (Macher, 2006).

Enterprise standardization is an improvement concept, as are total quality and error-free performance. These concepts have proven to be very difficult to implement successfully because the desired degree of improvement is difficult to achieve. One part of the difficulty lies in the sheer complexity of changing almost the behavior every sector of the business to achieve whether goals is set. Another part of the difficulty is in assessing metrics to measure progress. Still another part is due to the fact that these concepts do not refer to singularities, (Hertz, Johansson, and Jager, 2001). Any evaluation of progress is only a glimpse or a snapshot in a continuous steam of mini-improvements that happens over a period
of many years. Therefore, management has been trying for better quality, higher reliability through (ST), and better communication ever since there has been business for profit. Thus, there is always room for improvement when considering quality, reliability, and communication among manufacturing, suppliers and customers.

Leadership is a fundamental aspect of strategic management and paramount in strategy implementation. The firm's leadership will impact the firm's ability to change internal processes and procedures while addressing market opportunities. "Transformational leadership" in this respect is providing the vision and direction for the firm while setting the tone and tempo for the organizational culture and work climate. Essentially, we are experiencing a different organizational culture, which is the set of values, beliefs, rules and institutions held by a specific group of people that evolve overtime, (Robins and Coulter, 2007). Culture drives expected behaviors internal to the organization as well and these are engaged when interacting with the surrounding environment. Organizational cultures are integrated, differentiated, or fragmented, (Thomas and Mueller, 2000), thus, there is not certainly a stable organizational consensus. The paper explores if the above concept of culture will have an impact on standardization in the international business. The following section explores the importance of culture, therefore might affect international business activities.

INTERNAL BUSINESS DEMANDS FOR STANDARDIZATION, AND CULTURE

Strategic standardization is a methodology to employ to effectively manage, and to control standards-related activities, (Grant, 2008), and therefore many organizations recognize (ST) as a viable competitiveness strategy. Global firms engaged in high technology design, development, and manufacturing endorse strategic (ST) because it is recognized as crucial to their survival. A mutual understanding among workers within the cultural context is a variable from many to design a system of realistic standards to boost process interoperability without stifling technology development and technology insertion.

Employees are at the centre of all business activity. When people from around the world come together to conduct business, or work in other countries or environments, they bring with them different backgrounds, assumptions, expectations and ways of communicating-in other words culture (Forster,1997). Culture then assuming has a pivotal role in all international commercial activities. As globalization continues, managers directly involved in IB benefit increasingly from a certain degree of cultural literacy. Therefore, cultural literacy improves manager's ability to managing employees, markets, products, and to conduct negotiations in other countries. For example, a global brand such as "Gap" ([www.gap.com](http://www.gap.com)) provides a competitive advantage because consumers know and respect this recognizable name. Yet cultural differences dictate alterations in some aspect of a business to suit local tastes and preferences. The culturally literate manager that compensates for local needs and desires brings his / her company closer to customers, and employees, and improves the firm's competitiveness, (Wild et al, 2008).

Values are important to business because they affect people's work, ethics, and desire for material possessions. Because values are so important to individuals, groups, and management, the influx of values from other cultures can be fiercely resisted. When doing business in another culture, it is important for management to understand people's manners and customs. At a minimum, understanding manners and customs helps managers to avoid making mistakes. In-depth knowledge, meanwhile, it improves the ability to negotiate in other cultures, markets products effectively, and manages international operations.
People living in broadly different cultures tend to respond differently in similar business situations. Globalization and technology are increasing the pace of cultural change around the globe. Moreover, companies can influence culture when they import business practices or products into the host country. A firm’s choice of international strategy involves the search for competitive advantage from global configuration-coordination throughout the value chain, (Fitzgerald-Turner, 1997). For (Andrade, Mitchell, and Stafford, 2001), in today's environment, (ST) usually means cross-national strategies rather than a policy of viewing foreign markets as secondary and, therefore, not important enough to have products adapted for them. Global thinking requires flexibility in exploiting good ideas and products on a worldwide basis regardless of their origin.

Hunger and Wheelan (2003) argued that (ST) strategy depends on three sets of variables: 1. The market(s) targeted 2. The product and its characteristics, and 3. The company characteristics including factors such as resources and policy. Standardization of the physical attributes of a product and convergence of consumer preferences constraints, but does not eliminate opportunities for meaningful and profitable differentiation. Thus, product standardization is frequently accompanied by an increased differentiation of complementary service-financing terms warranties, after-sales services, and the like, (David, 1995).

For the global companies, a better approach to planning for standards may be to include (ST) as a component of their strategy. The companies would be planning to operate on a more global basis, planning to compete more effectively in a new market, seeking to expand their market or their competitive position, and seeking ways to protect significant investment in a rapidly changing technology. These investments could be in their manufacturing facilities, quality assurance and environmental impact policies and procedures, and process-interoperability plans (Gordon, 2003).

The goal of strategic standardization is to see how certain standards would help the company better fulfill its mission. In applying strategic-standardization management, the standards-investment decision becomes a strategic one for the company rather than a tactical one for the process. Therefore strategic-standardization management is not about standards. Rather, it is about leveraging all aspects of the standardizing process to optimize competitiveness, (Nell, 2008).

The section highlights the nature of the relationships between culture and (ST). From the above discussion we may conclude that culture is a concept, whereas (ST) is a policy and a strategy for management to implement in its IB activities. It seems to be that culture has a little effect on (ST) strategic management, however. As globalization continues to draw more and more companies into the international arena, understanding local culture can give a company an advantage over rivals. Culture is a variable in setting a policy, whereas (ST) is a strategy in the long-run.

To the researcher’s knowledge, nothing has been written about the effect of culture on standardization as strategic management efforts in IB in the Gulf Region despite the florishment of the multinational companies in this area. Indeed, one of the aims of this study is to verify whether there are any relationships between the Hofstede’s cultural dimensions responses to standardization in management strategy.

The research methodology is based on the same techniques used by Yoo, Donthu and Lenartowicz (2001). The same model is used by Kwok, and Uncles (2002), concerning cultural impact at an ethnic-group level in the field of marketing. The next section will examine if cultural concept affects standardization.
SUMMARY OF MEASURE AND ANALYSIS

Hypotheses

In general, it is hypothesized that differences based on Hofstede's (1991) five cultural dimensions can lead to relative differences between ethnic groups in their preferences for standardization. In effect, ethnic groups may differ in their relative choices of standardization. For example, the choice share of standardization might be higher for one ethnic group than another due to cultural differences.

In what follows, the hypotheses are based on the five cultural dimensions. It is should be kept in mind that the theoretical strength of the hypotheses is not equal across the five dimensions. For example, hypotheses regarding collectivism have a stronger theoretical basis than hypotheses regarding power distance. Also, as is in the nature of any testing of this kind, it is possible to conceive alternative arguments. However, all five dimensions have been included to ensure that the study is comprehensive, (Kwok, and Uncles, 2002).

The researcher based the research hypotheses on Hofstede's cultural dimensions. Therefore, the hypotheses produced are built on these dimensions, and it is not the intent of the researcher to support or criticized the dimensions.

Power Distance

Power distance deals with the acceptability of social inequalities, such as in power, wealth, and status, (Nakata and Sivakumar, 2001). In higher power distance cultures, inequality are prevalent and accepted. Employees in such cultures are thus likely to be more responsive to work promotions that contain standardization. In contrast, cultures with lower power distance are less tolerant of inequalities and special privileges. In such a culture, there would be a relatively higher preference for standardization that equal reward for everyone. These mainly involve standardization such as production promotions, as they are generally available with the same level of benefits offered to everyone. Differences in power distance often result in miscommunication and conflicts between employees from different cultures.

Hypothesis 1: standardization is more effective for low power distance cultures that are relative to high distance power cultures.

Uncertainty Avoidance

Uncertainty avoidance describes how cultures seek to deal with the fact that the future is not perfectly predicted. It is defined as the degree to which employees in a culture prefer structured over unstructured situation, (Noe, et.al, 2006). Though not equivalent, it is closely related to risk aversion. In high uncertainty avoidance cultures, there is a tendency to "prefer stable situations and avoid risk", (Usunier, 2000). Thus, such cultures would prefer standardization that offers more tangible and immediate employees' satisfaction to the extent that uncertainty avoidance is related to risk aversion. This is expected since such environments are more certain and involve minimal amount of risk. On the other hand, cultures with low uncertainty avoidance are more risk tolerant and see opportunities within future uncertainties. They socialize employees (individuals) to accept this uncertainty and take each day as it comes. In fact, they may even be considered as risk seeking given that cultures with low uncertainty avoidance were shown to exhibit higher levels of innovativeness (Elizabeth, 2000).
Hypothesis 2: standardization is more effective for high uncertainty avoidance cultures that are relative to low uncertainty avoidance cultures.

Individualism / Collectivism

Individualism- collectivism describes the strength of the relation between an individual and others in the society that is the degree to which people act as individuals rather than as members of a group. In an individualist culture, it has been suggested that employees are expected to look after their own interests and of their immediate families, (Noe, et.al, 2006). Individualistic cultures have distant social relationships in which personal goals are favored over group needs, (Mats, 2002). Value is placed on self-interest and independence, (Gurhan-Canli and Maheswaran, 2000). In addition, individualistic cultures emphasize differentiation (Aaker and Maheswaran, 1997). In contrast, less individualistic (or more collectivistic) cultures are characterized by close relationships and interdependence. Thus, collectivistic cultures can be expected to be less responsive to relationship building standardizations, since they will be reluctant to forge a relationship with an out-group. Instead, collectivistic cultures may be more likely to respond to standardization since the benefits provided are more common (e.g., conform to group norms) and are more readily shared amongst the in-group.

Hypothesis 3: standardization is more effective for collectivistic cultures that are relative to individualistic cultures.

Masculinity / Femininity

Masculinity refers to the tendency to strive for personal achievement and performance. These societies stress assertiveness, performance, success and competition, (Nakata and Sivakumar, 2001). At the other end of the spectrum, less masculine (or more feminine) cultures promote values that have been traditionally regarded as feminine, such as putting relationships before money, helping others, and preserving the environment. There is relatively less emphasis on personal and materialistic gains. These cultures stress service, care for the weak, and solidarity (Noe, et.al, 2006). Thus, feminine cultures are expected to be more responsive to non-standardization since the benefits offered are more relationship focused.

Hypothesis 4: standardization is more effective in masculine cultures that are relative to feminine cultures.

Confucian Dynamism

According to Hofstede, Confucian dynamism captures attitudes towards time, persistence, ordering by status, protection of face, respect for tradition, and reciprocation of gifts and favors. It has been suggested that the way employees "understand and allocate time may help explain differences in employees behavior across cultures". The final dimension of Confucian concerns time orientation and bipolar, (Kwok, and Uncles, 2002). It has been suggested that the way employees "understand and allocate time may help explain differences in employees behavior across cultures" (Brodowsky and Anderson, 2000). Employees in such cultures are more willing to make short-term sacrifices or investments for long term gains, (Nakata and Sivakumar, 2001). In effect, employees in cultures high on Confucian dynamism are expected to be more responsive to non-standardization, since many of the expected rewards are long term and loyalty-based. In contrast, the lower or negative end is characterized by a past oriented perspective, with an emphasis on traditions, (Fletcher and Brown, 1999). Employees in such cultures favor short-term planning and more immediate financial gains,
(Nakata and Sivakumar, 2001). Thus, employees of cultures low on Confucian dynamism are expected to react relatively poorly towards non-standardization promotions due to the delayed gratification involved. Instead, they are expected to favor standardization given the benefits which are more immediate and transactional.

**Hypothesis 5:** Standardization is more effective in cultures low on the Confucian dynamism that are relative to cultures high on the Confucian dynamism.

The five hypotheses associated with the five cultural dimensions are summarized in Figure 1. Each cultural dimension is considered one-by-one.

**Figure 1: Summary of Hypotheses**

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<tbody>
<tr>
<td>High Uncertainty Avoidance</td>
<td>Low Uncertainty Avoidance</td>
</tr>
<tr>
<td>Collectivistic</td>
<td>Individualistic</td>
</tr>
<tr>
<td>Masculine</td>
<td>Feminine</td>
</tr>
<tr>
<td>Low Confucian</td>
<td>High Confucian</td>
</tr>
</tbody>
</table>

- **Standardization**
- **Non-Standardization**
- **Homogeneous Products**
- **Heterogeneous**
- **Strategic Management**

**SAMPLES**

The two ethnic groups (Indians and Arabs) are selected for investigation. The source countries of these groups differ markedly in terms of Hofstede's (1991) cultural dimensions. Relatively, Arabs are seen as: high power distance, low on uncertainty avoidance, collectivistic, feminine and high on the Confucian dynamism, whereas the Indians are: low power distance, high on uncertainty avoidance, individualistic, masculine and low on the Confucian dynamism. A total of 717 questionnaires were completed with an equal split between the two groups. The sample represents 75% of the total foreign employees working in industrial enterprises in the "Industrial Area" in Abu Dhabi Emirates, UAE. For both groups, respondents were asked: (1) if their preference is standardization and (2) to complete the CVSCALE items.

Culture is measured using a personality-centered approach based on direct value inference (Lenartowicz and Roth, 1999). In particular, use is made of the CVSCALE proposed by Yoo, Donthu
Towards Strategic Management of Standards Activities in the International Business

This is an adaptation of Hofstede’s scale: it consists of 26-items, measured by 5-point Likert scales relating to Hofstede’s five cultural dimensions (see Appendix A). It allows culture to be measured at the individual level and then aggregated to form groups at a chosen level for comparison. This is appropriate as it recognizes that members of a society may not share the same cultural values (Au, 1999) and it also allows different ethnic groups within one country to be analyzed. As suggested by Yoo, Donthu and Lenartowicz (2001), the CVSCALE is useful for analyzing cultural values in a heterogeneous country like the UAE, and thus, the scale is particularly relevant for this study. Furthermore, the items of the scale have been adapted to suit the employees’ context. This reduces the negative impact of using Hofstedee's measures, which were based on work-related values. Finally, the CVSCALE has also been applied in cross-cultural research, (Yoo and Donthu, 2002). Thus, there is strong evidence to support the use of this scale (Kwok, and Uncles, 2002).

**ANALYSIS**

The researcher attempted at tracking the same techniques in analyzing the results used by Kwok and Uncles (2002) work. Responses to the CVSCALE are used to determine the relative cultural values of both ethnic groups on the five cultural dimensions. However, first the reliability and validity of the CVSCALE are tested. For the whole sample, the reliability alpha of the cultural dimensions ranged from 0.56 to 0.65 (Table 1). Although these results are modest, they are comparable to those reported by Yoo, Donthu and Lenartowicz (2001), and they all satisfy the reliability threshold of 0.6 that is commonly accepted for new scales, (Hair et al,1998). It should be noticed that reliability levels varied slightly between the ethnic groups. However, the variations are similar to those reported by Yoo, Donthu and Lenartowicz (2001), and in only one case did the reliability alpha fall below 0.6 (0.56 for masculinity among Indian) (Table 1).

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Whole Sample</th>
<th>Indian Minority</th>
<th>Arab Minority</th>
<th>Yoo, Donthu and Lenartowicz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance</td>
<td>0.67</td>
<td>0.71</td>
<td>0.64</td>
<td>0.61</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>0.61</td>
<td>0.69</td>
<td>0.63</td>
<td>0.71</td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.67</td>
<td>0.63</td>
<td>0.72</td>
<td>0.76</td>
</tr>
<tr>
<td>Masculinity</td>
<td>0.62</td>
<td>0.56</td>
<td>0.69</td>
<td>0.67</td>
</tr>
<tr>
<td>Confucian Dynamism</td>
<td>0.70</td>
<td>0.70</td>
<td>0.71</td>
<td>0.69</td>
</tr>
</tbody>
</table>

After reliability, factor analysis was used to ascertain the validity of the items (Table 2). Under the specification of 5 factors, the results of exploratory factor analysis provide preliminary support for the CVSCALE’s validity. With one exception (D3-personal steadiness and stability), all the items loaded highly on the appropriate factors and no item loaded on more than one factor.
### Table 2: Exploratory Factor Analysis Results

<table>
<thead>
<tr>
<th>CVSSCALE Item no.</th>
<th>Power Distance</th>
<th>Uncertainty Avoidance</th>
<th>Collectivism</th>
<th>Masculinity</th>
<th>Confucian Dynamism</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2</td>
<td>0.65</td>
<td>0.08</td>
<td>0.12</td>
<td>-0.06</td>
<td>-0.06</td>
</tr>
<tr>
<td>P1</td>
<td>0.62</td>
<td>0.06</td>
<td>-0.01</td>
<td>0.08</td>
<td>-0.14</td>
</tr>
<tr>
<td>P4</td>
<td>0.56</td>
<td>-0.07</td>
<td>0.09</td>
<td>0.12</td>
<td>0.05</td>
</tr>
<tr>
<td>P5</td>
<td>0.54</td>
<td>0.14</td>
<td>0.03</td>
<td>0.02</td>
<td>-0.01</td>
</tr>
<tr>
<td>P3</td>
<td>0.45</td>
<td>-0.23</td>
<td>-0.01</td>
<td>0.04</td>
<td>0.08</td>
</tr>
<tr>
<td>U3</td>
<td>0.01</td>
<td>0.73</td>
<td>0.02</td>
<td>0.08</td>
<td>0.02</td>
</tr>
<tr>
<td>U5</td>
<td>-0.02</td>
<td>0.60</td>
<td>0.04</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>U2</td>
<td>0.09</td>
<td>0.50</td>
<td>0.08</td>
<td>-0.17</td>
<td>0.22</td>
</tr>
<tr>
<td>D3</td>
<td>0.05</td>
<td>0.42</td>
<td>-0.02</td>
<td>-0.07</td>
<td>0.42</td>
</tr>
<tr>
<td>U4</td>
<td>-0.01</td>
<td>0.42</td>
<td>0.10</td>
<td>0.20</td>
<td>0.07</td>
</tr>
<tr>
<td>U1</td>
<td>0.09</td>
<td>0.41</td>
<td>-0.01</td>
<td>0.16</td>
<td>0.24</td>
</tr>
<tr>
<td>C3</td>
<td>0.01</td>
<td>0.00</td>
<td>0.63</td>
<td>0.15</td>
<td>0.17</td>
</tr>
<tr>
<td>C4</td>
<td>0.18</td>
<td>0.00</td>
<td>0.63</td>
<td>-0.04</td>
<td>0.18</td>
</tr>
<tr>
<td>C6</td>
<td>0.08</td>
<td>0.00</td>
<td>0.63</td>
<td>0.23</td>
<td>-0.05</td>
</tr>
<tr>
<td>C2</td>
<td>-0.15</td>
<td>0.15</td>
<td>0.51</td>
<td>-0.08</td>
<td>-0.11</td>
</tr>
<tr>
<td>C5</td>
<td>0.15</td>
<td>0.16</td>
<td>0.50</td>
<td>0.21</td>
<td>-0.15</td>
</tr>
<tr>
<td>C1</td>
<td>0.04</td>
<td>-0.01</td>
<td>0.50</td>
<td>0.01</td>
<td>0.13</td>
</tr>
<tr>
<td>M2</td>
<td>-0.03</td>
<td>0.06</td>
<td>0.01</td>
<td>0.71</td>
<td>0.12</td>
</tr>
<tr>
<td>M1</td>
<td>0.32</td>
<td>-0.10</td>
<td>0.15</td>
<td>0.64</td>
<td>0.12</td>
</tr>
<tr>
<td>M3</td>
<td>0.07</td>
<td>0.11</td>
<td>0.10</td>
<td>0.61</td>
<td>-0.01</td>
</tr>
<tr>
<td>D4</td>
<td>-0.02</td>
<td>0.24</td>
<td>0.05</td>
<td>0.05</td>
<td>0.66</td>
</tr>
<tr>
<td>D5</td>
<td>0.06</td>
<td>0.00</td>
<td>0.06</td>
<td>0.02</td>
<td>0.63</td>
</tr>
<tr>
<td>D6</td>
<td>-0.05</td>
<td>0.22</td>
<td>0.13</td>
<td>-0.08</td>
<td>0.62</td>
</tr>
<tr>
<td>D1</td>
<td>0.00</td>
<td>0.23</td>
<td>-0.04</td>
<td>0.06</td>
<td>0.55</td>
</tr>
<tr>
<td>D2</td>
<td>-0.15</td>
<td>-0.19</td>
<td>0.19</td>
<td>-0.02</td>
<td>0.32</td>
</tr>
</tbody>
</table>

**Extraction Method**: Principle Components

**Rotation Method**: Varimax

**Kaiser-Meyer-Olkin Measure of Sampling Adequacy**: 0.725

**Bartlett’s Test of Sphericity**: 0.000

The measurement model is based on the same specifications as Yoo, Donthu and Lenartowicz (2001), with 5 factors and 26 items, where each item loaded on only one factor and the factors are uncorrelated.

Using AMOS 4.0, the key results of the standardized solution are shown in Table 3.
Table 3: Confirmatory Factor Analysis Results

<table>
<thead>
<tr>
<th>CVSCALE Item No.</th>
<th>Power Distance</th>
<th>Uncertainty Avoidance</th>
<th>Individualism</th>
<th>Self-Esteem</th>
<th>Time Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>0.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>0.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
<td>0.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td></td>
<td></td>
<td>0.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td></td>
<td></td>
<td>0.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td></td>
<td></td>
<td>0.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td></td>
<td></td>
<td>0.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td></td>
<td></td>
<td>0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td></td>
<td></td>
<td>0.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculinity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.57</td>
</tr>
<tr>
<td>Masculinity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.54</td>
</tr>
<tr>
<td>Masculinity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.57</td>
</tr>
<tr>
<td>Masculinity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.34</td>
</tr>
<tr>
<td>Conf-Dynam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.54</td>
</tr>
<tr>
<td>Conf-Dynam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.20</td>
</tr>
<tr>
<td>Conf-Dynam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.46</td>
</tr>
<tr>
<td>Conf-Dynam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.69</td>
</tr>
<tr>
<td>Conf-Dynam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.45</td>
</tr>
<tr>
<td>Conf-Dynam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.64</td>
</tr>
<tr>
<td>Composite Reliability</td>
<td>0.78</td>
<td>0.79</td>
<td>0.82</td>
<td>0.76</td>
<td>0.82</td>
</tr>
<tr>
<td>Variance Extracted</td>
<td>0.49</td>
<td>0.49</td>
<td>0.49</td>
<td>0.49</td>
<td>0.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(X^2)</th>
<th>d.f.</th>
<th>RMSEA</th>
<th>NFI</th>
<th>CFI</th>
<th>IFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>536.95</td>
<td>295</td>
<td>0.04</td>
<td>0.95</td>
<td>0.97</td>
<td>0.97</td>
</tr>
</tbody>
</table>

The overall fit of the measurement model was excellent: \(X^2 (d.f = 295) = 536.95\): root mean square error or approximation (RMSEA) = 0.04, normed fit index (NFI) = 0.94, comparative fit index (CFI) = 0.96, and the incremental fit index (IFI) = 0.96. These results provide strong confirmatory support for the CVSCALE and its use in studying the hypothesized constructs.
With regard to composite reliability, all the estimates were above the recommended level of 0.70, ranging from 0.77 to 0.81, (Table 3). In addition, whilst the average variance extracted for each dimension was only moderate at 0.49, they do satisfy the minimum acceptable level, (Hair et al, 1998). Thus; the results provide support for the independence of the dimensions.

Having confirmed the reliability and validity of the CVSCALE, responses to the scale are then aggregated for analysis. The score is calculated as the average of the individual items of each cultural dimension answered by the respondents of each ethnic group. This approach reflects the flexibility of the CVSCALE in that it allows culture to be measured at the individual level but analyzed at an appropriate aggregated level. The average scores are then compared to classify the relative cultural values of the two ethnic groups on each dimension, (Table 4).

<table>
<thead>
<tr>
<th>Table 4: Average Cultural Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance</td>
</tr>
<tr>
<td>Indian</td>
</tr>
<tr>
<td>Arab</td>
</tr>
<tr>
<td>T-value</td>
</tr>
<tr>
<td>Sig. P-value</td>
</tr>
</tbody>
</table>

Although the absolute difference appears small, based on conventional statistical standards, there are significant differences between the two ethnic groups on all the cultural dimensions (P<0.05), except for uncertainty avoidance. Using the relative averages, Indians can be classified as relatively low power distance, low on uncertainty avoidance, individualistic, feminine and low on Confucian dynamism, and vice-versa for Arabs. However, some inconsistency is acceptable given the distinctiveness of the CVSCALE and the limitations of Hofstede’s empirical data.

TESTING HYPOTHESES

In testing the hypotheses, the data was analyzed at an ethnic group level. The ethnic groups are already classified on each cultural dimension as shown in Table 4. For the purposes of analysis, the upper median splits within each ethnic group on each cultural dimension are used. The choice share results provide a basis to evaluate the hypotheses. As is evident in Table 5, there were no significant differences in the choice shares between ethnic groups across employees toward standardization. Specifically, this is in line with the prediction of hypotheses between culture and standardization.
Table 5:  Choice Shares for Standardization at an Ethnic Level

<table>
<thead>
<tr>
<th></th>
<th>All Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Distance</strong></td>
<td></td>
</tr>
<tr>
<td>Low-Indian</td>
<td>80%</td>
</tr>
<tr>
<td>High- Arab</td>
<td>78%</td>
</tr>
<tr>
<td>(sig. p-value)</td>
<td>(0.51)</td>
</tr>
<tr>
<td><strong>Uncertainty Avoidance</strong></td>
<td></td>
</tr>
<tr>
<td>Low-Indian</td>
<td>77%</td>
</tr>
<tr>
<td>High- Arab</td>
<td>76%</td>
</tr>
<tr>
<td>(sig. p-value)</td>
<td>(0.39)</td>
</tr>
<tr>
<td><strong>Individualism</strong></td>
<td></td>
</tr>
<tr>
<td>Individualist-Indian</td>
<td>76%</td>
</tr>
<tr>
<td>Collectivist-Arab</td>
<td>775%</td>
</tr>
<tr>
<td>(sig. p-value)</td>
<td>(0.70)</td>
</tr>
<tr>
<td><strong>Self-Esteem</strong></td>
<td></td>
</tr>
<tr>
<td>Feminine-Indian</td>
<td>78%</td>
</tr>
<tr>
<td>Masculine-Arab</td>
<td>79%</td>
</tr>
<tr>
<td>(sig. p-value)</td>
<td>(0.77)</td>
</tr>
<tr>
<td><strong>Time Orientation</strong></td>
<td></td>
</tr>
<tr>
<td>Low-Indian</td>
<td>76%</td>
</tr>
<tr>
<td>High- Arab</td>
<td>78%</td>
</tr>
<tr>
<td>(sig. p-value)</td>
<td>(0.62)</td>
</tr>
</tbody>
</table>

*Choice for non-standardization is the complement to 100%*

In order to provide further understanding, the data were also analyzed at an individual level. Specifically, median splits were conducted on each dimension based on the scores of all individuals, regardless of their ethnic background, Table 6.
As shown in Table 6, it is evident that the results generally reflect those found at the ethnic level. Firstly, the reduction in the -2 log likelihood values and the $R^2$ values for each regression are again relatively low, suggesting a poor fit for all the models. However, with the exception of the collectivist dimension, model coefficients were found to be significant for the same dimensions identified at the ethnic level ($P < 0.05$). Similarly, standardization was consistently shown to have a significant and a negative relationship with the employee's culture: high power distance ($\beta = -0.82$, $P = 0.00$), high uncertainty avoidance ($\beta = -0.79$, $P = 0.00$), masculine ($\beta = -0.84$, $P = 0.00$) and high Confucian dynamism ($\beta = -0.62$, $P = 0.00$). These results confirm that the findings at the ethnic level are not associated with (ST). In regard to the covariates, they were generally again found to be insignificant. However, there are some results that differ on the ethnic level. Firstly, the model coefficients for low uncertainty avoidance, individualist and low Confucian dynamism were also found to be significant ($P < 0.05$). Standardization was again negatively related to ethnic culture. In addition, under the low Confucian dynamism dimension female responses were positively related with the choice of standardization ($\beta = 0.42$, $P = 0.05$).

<table>
<thead>
<tr>
<th>Table 6: Logistic Regression Results at an Ethnic Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model Summary</strong></td>
</tr>
<tr>
<td>-2 log Likelihood</td>
</tr>
<tr>
<td>Low Power Distance</td>
</tr>
<tr>
<td>High Power Distance</td>
</tr>
<tr>
<td>Low Uncertainty Avoidance</td>
</tr>
<tr>
<td>High Uncertainty Avoidance</td>
</tr>
<tr>
<td>Individualist</td>
</tr>
<tr>
<td>Collectivist</td>
</tr>
<tr>
<td>Feminine</td>
</tr>
<tr>
<td>Masculine</td>
</tr>
<tr>
<td>Low Confucian Dynamism</td>
</tr>
<tr>
<td>High Confucian Dynamism</td>
</tr>
</tbody>
</table>

*a Model -2 Log Likelihood  
b Initial -2 Likelihood  
c Nagelkerke  
d Significant value*
CONCLUSION

There is recognition of the importance of standards in the globalizing economy, as do many in businesses and companies in the IB. The purpose of this study is to raise awareness and highlight the importance of standardization in the IB with culture.

A significant awareness exists with top management nowadays in the private and public sectors concerning (ST) and its effect on global commerce. Many leading companies in IB, regardless of the context of (ST) develop business standardization policies and strategies. The policies are often technically based regardless of the inter-and intra-relatedness of various management systems.

Clear cultural differences are found at ethnic group levels. The mean scores between the two groups are significantly different from each other across cultural dimensions, but there is no significant difference towards standardization. The implication of this finding is twofold. First, cultural differences do not appear to affect employees' response towards standardization. This suggests that managers can use standardized products when targeting different ethnic groups and avoid the use of more costly differentiated strategies. Second, the finding highlights the fact that cultural distinctions may be more relevant in some areas of business than in others. Thus, it would be a mistake to assume that cultural differences will affect all areas of IB management.

The researcher believes that the effect of culture, even if exists, is on the short-run, whereas the effect of (ST) became a strategy for the firm on the long-run. In reality, while culture might influence the economic success of a nation, it is just one of many factors, and while its importance should not be ignored, it should not be overstated either. This may need a further investigation, witnessing examples from economies with different level of development. The study also validates the CVSCALE established by Yoo, Donthu, and Lenartowicz.

LIMITATIONS AND FURTHER RESEARCH

There are several limitations relating to the focus of the study and the methodology used. Some of these highlight useful directions for future research.

One issue is that further information is needed to foster if culture has a relationship with the standardization in the IB. (For example the acculturation analysis (i.e., if respondents have lived in the UAE, or were born in the UAE or overseas). However, the researcher thinks that the analysis presented above is enough to assess if culture has an effect on standardization.

In terms of methodology for this study, a quasi-experimental design is adopted and data is analyzed using inferential statistics. It is acknowledged that this is only one way of the many possible methodologies that might be used. An alternative would be to observe the choice behavior of management at the point of decision towards standardization. The study could be further extended by considering the use of alternative measures and stimuli. For example, culture may also be measured using Hofstede's (1990) original scale, or one of the alternatives that have existed in the field of business. The results may then be compared with the CVSCALE to provide a form of triangulation, (Kwok and Uncles, 2002).
REFERENCES

Towards Strategic Management of Standards Activities in the International Business


### APPENDIX A: THE CVSCALE

<table>
<thead>
<tr>
<th>Cultural Dimension</th>
<th>Measurement Items</th>
<th>5-Point Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Distance</strong></td>
<td>P1. People in higher positions should make most decisions without consulting people in lower positions.</td>
<td>1= Strongly agree</td>
</tr>
<tr>
<td></td>
<td>P2. People in higher positions should not ask the opinions of people in lower positions too frequently.</td>
<td>2= Agree</td>
</tr>
<tr>
<td></td>
<td>P3. People in higher positions should avoid social interaction with people in lower positions.</td>
<td>3= Neither</td>
</tr>
<tr>
<td></td>
<td>P4. People in lower positions should not disagree with decisions by people in higher positions.</td>
<td>Agree/disagree</td>
</tr>
<tr>
<td></td>
<td>P5. People in higher positions should not delegate important tasks to people in lower positions.</td>
<td>4= Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5= Strongly disagree</td>
</tr>
<tr>
<td><strong>Uncertainty Avoidance</strong></td>
<td>U1. It is important to have instructions spelled out in detail so that I always know what I’m expected to do.</td>
<td>1= Strongly agree</td>
</tr>
<tr>
<td></td>
<td>U2. It important to closely follow instructions and procedures.</td>
<td>2= Agree</td>
</tr>
<tr>
<td></td>
<td>U3. Rules and regulations are important because they inform me of what is expected of me.</td>
<td>3= Neither</td>
</tr>
<tr>
<td></td>
<td>U4. Standardized work procedures are helpful.</td>
<td>Agree/disagree</td>
</tr>
<tr>
<td></td>
<td>U5. Instructions for operations are important.</td>
<td>4= Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5= Strongly disagree</td>
</tr>
<tr>
<td><strong>Individualism / Collectivism</strong></td>
<td>I1. Individuals should sacrifice self-interest for the group (either at school or the work place).</td>
<td>1= Strongly agree</td>
</tr>
<tr>
<td></td>
<td>I2. Individuals should stick with the group even through difficulties.</td>
<td>2= Agree</td>
</tr>
<tr>
<td></td>
<td>I3. Group welfare is more important than individual rewards.</td>
<td>3= Neither</td>
</tr>
<tr>
<td></td>
<td>I4. Group success is more important than individual success.</td>
<td>Agree/disagree</td>
</tr>
<tr>
<td></td>
<td>I5. Individuals should only pursue their goals after considering the welfare of the group.</td>
<td>4= Disagree</td>
</tr>
<tr>
<td></td>
<td>I6. Group loyalty should be encouraged even if individual goals suffer.</td>
<td>5= Strongly disagree</td>
</tr>
<tr>
<td><strong>Masculinity / Femininity</strong></td>
<td>S1. It is more important for men to have a professional career than it is for women.</td>
<td>1= Strongly agree</td>
</tr>
<tr>
<td></td>
<td>S2. Men usually solve problems with logical analysis; women usually solve problems with intuition.</td>
<td>2= Agree</td>
</tr>
<tr>
<td></td>
<td>S3. Solving difficult problems usually requires an active, forceful approach, which is typical of men.</td>
<td>3= Neither</td>
</tr>
<tr>
<td></td>
<td>S4. There are some jobs that a man can always do better than a woman.</td>
<td>Agree/disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4= Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5= Strongly disagree</td>
</tr>
<tr>
<td><strong>Confucian Dynamism</strong></td>
<td>T1. Careful Management of money (thrift)</td>
<td>1= Strongly agree</td>
</tr>
<tr>
<td></td>
<td>T2. Going on resolutely in spite of opposition</td>
<td>2= Agree</td>
</tr>
<tr>
<td></td>
<td>T3. Personal steadiness and stability</td>
<td>3= Neither</td>
</tr>
<tr>
<td></td>
<td>T4. Long term planning</td>
<td>Agree/disagree</td>
</tr>
<tr>
<td></td>
<td>T5. Giving up today’s fun for success in the future</td>
<td>4= Disagree</td>
</tr>
<tr>
<td></td>
<td>T6. Working hard for success in the future</td>
<td>5= Strongly disagree</td>
</tr>
</tbody>
</table>
SHARE PRICE REACTION TO DEBT ISSUANCE AND CAPITAL STRUCTURE IN AUSTRALIA

Oraluck Arsiraphongphisit1, Mohamed Ariff2 and Dev Prasad3
Monash University, Australia1, Bond University, Australia2 and University of Massachusetts Lowell, USA3

ABSTRACT

This study expands the earlier research relating to the optimal capital structure propositions, by studying the impact of debt on share prices as a result of the changes in the debt-equity ratio. This paper expects to expand our understanding by postulating that there are actually 2 effects at work. The first is the signaling effect on share prices by announcement of 'debt' as the chosen means of financing. The second effect being the movement of the firm's debt-equity ratio relative to its industry median debt-equity ratio. It is argued that there would be an increase (decrease) in abnormal share returns when debt financing moves capital structure of a firm closer to (away from) the industry median debt-equity ratio. The abnormal returns observed at the disclosure time of debt issues are found to be significantly correlated with the capital structure changes. Thus, this study expects to fill a gap in the literature by showing the relationship between capital structure changes and the abnormal share returns at the time of debt issues. The results of this study is also expected to help policy makers at the macro level, and at the firm level as they make decisions as to the appropriate means of financing while trying to shake off the effects of the current financial crisis.

Keywords: Share Price, Abnormal Returns, Debt Issuance, Capital Structure, Australia

INTRODUCTION

This study expands the earlier research relating to the optimal capital structure propositions, by studying the impact of debt on share prices as a result of the changes in the debt-equity ratio. This paper expects to expand our understanding by postulating that there are actually 2 effects at work. The first is the signaling effect on share prices by announcement of 'debt' as the chosen means of financing. The second effect being the movement of the firm's debt-equity ratio relative to its industry median debt-equity ratio. It is argued that there would be an increase (decrease) in abnormal share returns when debt financing moves capital structure of a firm closer to (away from) the industry median debt-equity ratio. The study finds that abnormal returns observed at the disclosure time of debt issues are significantly correlated with the capital structure changes. Thus, this study expects to fill a gap in the literature by showing the relationship between capital structure changes and the abnormal share returns at the time of debt issues. The results of this study is also expected to help policy makers at the macro level, and at the firm level as they make decisions as to the appropriate means of financing while trying to shake off the effects of the current financial crisis.

The remainder of the paper is structured as follows. The next section contains a brief restatement of literature on relevant capital structure theories and hypotheses. Thereafter, there are two sections: one
Oraluc Arsiraphphisit, Mohamed Ariff and Dev Prasad

concerned with data and research methodology followed by a section which summarizes the findings of the study. Finally, a conclusion of the study is provided in the last section. This study reports evidence in support of the hypotheses that the changes in capital structure – following debt issues – are correlated significantly with share price changes.

BACKGROUND AND LITERATURE REVIEW

The well-entrenched optimal capital structure theory of Modigliani-Miller (MM) suggests that a firm should gain/lose tax-shield value when its debt financing activities adjust its capital structure towards/away from its optimal leverage. Industry practitioners and institutional lenders generally use industry average or median debt-equity ratio as a proxy for the yet-specified optimal ratio for a firm. This practice is in fact found in U.S. studies by Hovakimian et al. [2001] and Flannery and Rangan [2006], reporting that firms tend to move their leverage toward a target ratio over time. Could this relative capital structure to industry be the optimal capital structure measure?

Despite extensive studies on the effects of debt financing announcements on share value, little evidence exists to support a direct test since most employ standard event studies. There is as yet an attempt to relate the impact of debt announcements of a firm to its respective industry capital structure norm. This paper takes a different direction in research by using an idea of relative capital structure, which is defined as changes in capital structure relative to industry median ratio arising from changes in debt financing decisions. Hull [1999] and Ariff and Lau [1996] examined this issue obliquely using ordinary rights issues, not debt issues. This idea is based on a view that, if capital rationing by fund providers is a hard constraint faced by management of a firm, it is arguably correct to assume that, at the time of financing decision disclosures, fund providers are likely to revalue the share prices of a firm based on a firm’s capital structure relative to its industry capital structure. Such fund providers can be either stockholder at the time of equity offers or debt-holder at the time of debt issues. Therefore, debt-holders’ views of a firm’s capital structure quality are likely to result in changes in share prices as documented by Baker and Wurgler [2002] showing that capital structure decisions influence share prices in the U.S.

This paper aims to observe if changes in capital structure relative to industry benchmark are in fact directly correlated with the well-documented announcement effects of debt financing. In essence, the paper reports whether markets perceive an industry median debt-equity ratio as a useful benchmark when evaluating a firm’s value following its debt financing decision. Debt markets have increasingly been growing in the past decade. As the Australian share market is efficient and is the eighth largest capital market with a substantial number of debt issues, this market is ideal for this study. Also, no study exits on bond issue effect on share prices. To further understand an effect of debt level on share value, this paper also tests the extent to which measured level of changes in capital structure significantly affect share values, starting from 5 to 20 percent changes to capital structure. A regression analysis incorporating the effect of debt financing on leverage relative to industry benchmark, is also done to ensure the robustness of the findings.

Theoretical Perspectives

Several theories in the literature offer a mixed bag of directions for capital structure decisions. The optimal capital structure by Modigliani and Miller [1958; 1961] was welcomed by researchers, and frequently fuelled a debate as to whether capital structure would affect firm value. Pecking order was later introduced by Donaldson [1961]. It gained credibility and was extended by Myers [1984], Myers
and Majluf [1984], and Miller and Rock [1985]. It suggests that managers prefer to finance projects employing retained earnings, debt, and equity in that order. Although these different financial policies and environment can determine a firm’s capital structure, some evidence show that firms behave as if they have target capital structure over a period longer than a year and gradually move toward it (Shyam-Sunder and Myer, 1999; Titman and Tsypplakov, 2005; Kayhan and titman, 2007). A variation of the target capital structure concept so-called dynamic capital structure was also emphasized by Ozkan [2001]. Ozkan [2001] observed that firms have long-term target capital structure and tend to correct their capital structure relatively fast. The deviation from target capital structure may act as a predictor of whether a firm will prefer debt or equity in the future (Hovakimian et al. 2001).

Directly relevant to this paper, there is an extensive body of literature examining share price reaction to security issues, particularly in the U.S. Most of these studies on straight debt issues have been conducted in the U.S. with results that are inconclusive. Interestingly, results obtained from European countries (Brounen and Eichholtz, 2001; Arrondo and Gomez-Anson, 2003) show that the market responds positively to straight debt announcements.

**Optimal Capital Structure Theory**

Optimal capital structure theory attributed to Modigliani-Miller paradigm suggests there exists an optimal leverage at which a firm obtains a maximum value by minimizing its weighted average costs of capital, given the market imperfections, among others, from tax-deductibility of interest costs from pre-tax incomes of firms. The proposition asserts that the value of a firm with tax-deductible interest is equal to the value of an all-equity firm as enhanced by the tax savings. That is, 

\[ V_L = V_U + \tau_c D \]

where \( V \) is firm value, \( L \) represents a levered firm, \( U \) represents an unlevered firm, \( D \) is debt levels, and \( \tau_c \) is the corporate tax rate.

By further modifying Modigliani and Miller’s [1958] assumptions and by introducing the agency costs idea of Jensen and Meckling [1976], finance researchers have discovered that financial distress and bankruptcy costs may also provide an economic rationale for the existence of an optimal capital structure. If parties to the relationship are utility maximizers, the management may not act in the best interests of the principal, given the widespread separation of ownership and control of firms listed and traded in the share exchanges. Agency costs reflect a degree of a conflict of interest between parties, and affect equity prices negatively. Hence, the optimal value may be determined at the point where the total agency cost is the lowest. This is thus the final element in the equation.

\[ V_L = V_U + PV(\text{Tax Shields}) - PV(\text{Bankruptcy Costs}) - PV(\text{Agency Costs}) \]  

The equation expresses the value of a levered firm in terms of the value of unlevered firms (Modigliani and Miller, 1958; 1963) adjusted for tax benefits (Miller, 1977), bankruptcy costs (Robicheck and Myers, 1966; Baxter, 1967), and agency costs (Jensen and Meckling, 1976). An important notion is that tax benefits initially increase as a firm takes on more debt (and move capital structure closer to the optimal

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3 Shyam-Sunder and Myer [1999] show a simple form of target adjustment model which is expressed in a regression model. 

\[ \Delta D_i = a + b \tau_c (D_i^* - D_{i-1}) + \varepsilon_i \]

where \( D_i^* \) is the target debt level for firm \( i \) at time \( t \), \( b \tau_c \) is the target-adjustment coefficient, as a sample-wide constant.

4 Agency costs are defined by Jensen and Meckling [1976] as the costs incurred when the interests of managers are not aligned with those of stockholders and bondholders. Thus, a firm with a diffuse capital structure is more likely to incur higher agency costs and hence have lower profitability than firms with less diffuse structures.

5 Interestingly, Black and Scholes’ [1973] Option Theory could also be used to study this aspect of equity value as the call value of a debt-taking firm.
level). Once a firm reaches a leverage position where the costs of using debt offsets its tax shield advantages, it appears to achieve the optimal capital structure with maximal firm value. Further increase in debt financing beyond the optimal ratio would increase the bankruptcy, agency costs and decrease the tax shield value. Thus, these financing decisions should devalue the share prices.

Issuing equity that changes the leverage below the optimal ratio would similarly increase the cost of equity capital, thus devalue the share prices. Movements away from the optimum are deemed value-decreasing changes to capital structure while capital structure adjustments towards the optimal point are deemed value-increasing changes. It can be argued that, capital structure improvements via more equity funding may lead to improved valuation of a firm, and hence lead to a positive price effect.

Despite a sound theory and extensive research on optimal capital structure, the literature is not helpful in specifying the level at which capital structure becomes optimal. Hence, there exists a need to specify the optimal point for market practitioners. Literature suggests that fund providers may use an industry average capital structure as the optimal target for a given industry thus a firm. Therefore, if the industry ratio is used as a benchmark for fund provider’s decisions on optimality, it is feasible to employ a firm’s capital structure relative to the capital structure of its industry to observe whether the market is indeed valuing the firm in the manner suggested by the theory.

Many studies had attempted to explain the existence of optimal leverage. The most common tests are determination of whether capital structure can be explained by variables driving the trade-off between debt and equity and whether these variables are related negatively or positively to the levels of debt taken. The more relevant evidence to this research is studies related to industry effects. For example, Ariff and Lau [1996] report that debt-equity ratio is stable over time within industries unless affected by changes in tax or bankruptcy law and this ratio is approximately 0.40 to 0.65 in Atlantic countries and Australia and about 0.70 to 0.85 in East and South Asia.

Leary and Roberts [2005] later show that firms rebalance their capital structure continuously in order to maintain leverage within an optimal range. Titman and Tsypaklov [2005] show that capital structure may vary over a relatively large range, depending on costs and benefits of debt financing while MacKay and Phillips [2005] document a slow adjustment toward industry means. Based on optimal capital structure theory, issuing debt is denoted as a movement toward the optimum. It follows that debt issues generally convey favourable news and result in positive share price reactions as they increase a firm's financial leverage, i.e. when the current leverage position is below the optimum.

Despite extensive research, the classic optimal capital structure predictions have yet been directly verified, especially in Australian context. Studies largely revolve around identifying variables driving the trade-off between debt and equity or demonstrating the use of capital structure in different industries. A number of studies report evidence that firms appear to set a target leverage and either gradually or rapidly move towards it (e.g. Leary and Roberts, 2005; Flannery and Rangan, 2006; Kayhan and Titman, 2007). The evidence revealed not only that capital structure is different across industries (Love and Wickramanayake, 1996; Hall et al. 2000), but also that firms rely on industry leverage in designing their capital structure policies (Damodaran, 2001). Given these evidence, it can be implied that firms regard industry ratio as desirable capital structure. Although Ghosh and Cai [1999] find that firms tend to move toward their industry mean over time, a direct empirical test on optimal capital structure effect from debt based on this notion has not been attempted.
Signaling Theory

Signaling theory has been popular in the literature in an endeavor to explain market reaction to management decisions. This is needed to measure the extent of price change at the time a given financing decision is announced. The theory suggests that managers are privy to inside information and are thus at a considerable informational advantage compared to outsiders regarding a firm’s activities, thus its value, investment opportunities and so on. Given this informational advantage, Ross [1977] posits that managers have an incentive to convey information about their firm’s prospect to the market through their financing activities. Later, Leland and Pyle [1977] posit that the level of share ownership retained by managers is a signal that managers are ‘willing to invest in their own project’ and given that they have superior knowledge regarding future cash flows and prospects of the firm, the signal is positive (particularly given that they are potentially increasing their diversification risk by colloquially speaking ‘retaining all their eggs in one basket’). Rational investors would thus perceive the level of managers’ share ownership as a credible signal regarding a firm’s quality (Masulis and Korwar, 1986). Negative share price responses are therefore predicted should managers issue new share, which in turn reduce their ownership portion of the firm.

An alternative information asymmetry explanation is advanced by Miller and Rock [1985], namely implied cash flow change hypothesis. As in Ross [1977] and Leland and Pyle [1977], this hypothesis suggests that a firm’s quality is associated with a firm’s performance. It predicts that a firm tends to raise new funds when its cash flow is weakening. Thus, an unexpected new outside financing, either equity or debt, conveys bad news to the market as to the firm as facing cash flow problems and the risk of not meeting its future obligations as when they fall due. Unlike the previous signaling hypothesis, Miller and Rock [1985] predict a negative association between share price and either equity or debt offerings. In summary, asymmetric information theory generally predicts debt announcements are favorable and equity announcements are unfavorable news.

Research Hypotheses

Despite an extensive use of industry ratio as a benchmark both in academic teaching of corporate finance and industry practices, a direct test of relative capital structure changes on firm value is needed. Given the themes adopted in the brief review of the literature, the test hypotheses are as follows.

$H_1$: There is a positive correlation between cumulative abnormal returns, CARs, (change in share value) and capital structure that moves closer to capital structure industry median, i.e. a firm increases its value if its capital structure moves closer to its industry median.

This is due to the firm gaining tax shield value, when moving from a low capital structure towards the optimum.

$H_2$: There is a negative correlation between CARs (change in share value) and capital structure that moves away from capital structure industry median, i.e. a firm decreases its value if its capital structure moves away from its industry median.

In this case, the firm would lose tax shield value for increasing its capital structure from its near-optimal position before the debt financing.
By grouping the sample of events into different levels of capital structure changes (more than 5 percent and 10 percent; more than 10 percent and 20 percent; and more than 20 percent) a further hypothesis is done as to whether the significant changes in share value, if any, accrue at one or more levels of capital structure changes.

\( H_3: \) Changes in capital structure between more than 5 percent and more than 20 percent are significantly correlated with CARs associated with the changes, i.e. the debt financing decisions.

The maintained hypothesis is that all levels of changes in capital structure will have significant changes to the value of a firm, but some create a greater impact.

The final test is on whether the theory-suggested seven variables are correlated with the observed abnormal returns. This is done as a joint test by regressing all seven variables against CARs.

\( H_4: \) Firm-specific variables used in a regression test are all significantly correlated with the observed CARs (for the debt issue events).

**DATA AND METHODOLOGY**

The test is designed to examine the relationship between capital structure changes from debt issue financing and firm value changes. In particular, the study attempts to determine whether the directional changes in capital structure level arising from debt financing, relative to the industry benchmark, are related to firm value changes. If so, at what levels capital structure adjustments affect firm value. Doing that requires debt issue announcements.

**Data and Variables**

*Firm specific data:* The initial sample consisted of market announcements of 77 straight debt issues. These announcements were made by firms listed on the Australian Stock Exchange (ASX) and announced and issued these securities between 1991 and 2004. The timeframe in which the economy was relatively stable despite Asian crisis which affected Australian economy the least among Asia-Pacific region. Announcements of interest must have a clear public disclosure date and must not concurrently have other potential confounding events such as dividends, earnings, etc. However, announcements made by firms over the first year of listing were excluded. In addition, only events that experienced at least a five percent change in capital structure were included in the study. For each observation, event date, daily share price and relevant market and financial data were collected. The primary source of data for event dates and market data were DatAnalysis, SIRCA, and Bloomberg databases. The financial data were collected from various sources, including Connect4, DatAnalysis, and Aspect Financial Analysis databases.

To test the effect of different degree of capital structure changes arising from debt issues on firm value, the sample was later classified into three groups. These groups include those having percentage changes in capital structure between: (i) more than 5 percent and 10 percent; (ii) more than 10 percent and 20 percent; and (iii) more than 20 percent.

Conventional theory and practice identify debt and equity as the only funding sources available to the firm, and the ratio between debt and equity is used to denote the long term capital structure of the firm. The use of financial items, including debt and equity items from financial statements of a firm is based
on evidence that there is the relation between accounting numbers and security returns or firm value (Riff and Thompson, 1998; Nissim and Penman, 2003). The standard accounting measure designates leverage ratio as generally arising from either financing or operating activities. As this study focuses on capital structure, it therefore bases the ratio on a traditional view, i.e. leverage arises from financing activities. Consistent with prior studies, this study employs the ratio of debt to equity (D/E) as a proxy for capital structure or leverage of a firm. While debt is book value of all interest bearing debt, equity is measured by market capitalization of a firm. The interest bearing debt is typically bank loans, bonds, and commercial papers. It distinguishes financing liabilities from operating liabilities. The use of market capitalization as a proxy for the market value of equity is consistent with many previous studies (e.g. Ertimur et al., 2003; Copeland et al., 2004; Beaver et al., 2005).

Debt-Equity industry ratio: Apart from collecting firm-specific data, this study requires the calculation of a debt-equity industry benchmark as Australian debt-equity industry ratio is not readily available. Since the median debt-equity ratio (MedDE) is commonly used as an industry capital structure ratio (Hull, 1999), it was also used as a proxy for an industry benchmark in this study. Consistent with the industry classification system currently employed by the ASX, this study used the Global Industry Classification Standard’s (GICS) system to classify industry sectors. An industry thus consisted of all firms within the same industry sector. Financial information required for computing industry ratios were obtained from Aspect Financial Analysis, DatAnalysis, and Sirca commercial databases.

Test Models

The methodology used in this study was developed based on capital structure theory predictions, i.e. the effects of directional capital structure changes relative to the industry benchmark on firm value. The relationship between directional changes in capital structure and firm value is expressed in a regression equation as follows:

\[ Z_{it} = b_{0i} + \sum_{j=1}^{4} b_j (X_j)_{it} + e_{it}, \]

where \( Z_{it} \) is three-day CAR\(^6 \) over the on-event window as a proxy for firm value change, \( b_{0i} \) is the intercept term which is significant if the left out factors are important, \( \Sigma \) is summation operator for \( j : 1, 2, 3, \) and 4 event types, \( e_{i,t} \) is the residual term, \( b_j \) is coefficients of independent dummy variables, and \( X_1, X_2, X_3, \) and \( X_4 \) are dummy variables which are explained in detail as follow.

For each event, the respective D/E ratio was evaluated against a firm’s respective industry benchmark and the direction of changes in capital structure relative to industry benchmark was identified. These directions could be classified into four groups according to optimal capital structure theory. These groups correspond with the dummy variables specified in the above regression. Exhibit 1 provides a graphical illustration of the dummy variables.

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\(^6\) The calculation of CARs was conducted within a standard event study framework as described in Brown and Warner [1980; 1985]. In this study, the market adjusted returns are employed as abnormal returns.
**Exhibit 1: Directional Changes of Capital Structure Relative to Industry Median**

\[ X_1 \text{ and } X_2 \text{ represent firms whose capital structure moves away from industry benchmark while } X_3 \text{ and } X_4 \text{ represent those whose capital structure moves closer to industry benchmark.} \]

Once events were classified into the above groups, the effect of a directional change in capital structure relative to the industry median (to overcome non-normality) of each observation, firm value were observed. This analysis was based on theoretical predictions derived from optimal capital structure theory, which posits that (please refer to Exhibit 1):

(i) An increase in D/E ratio *away from* the industry benchmark will *decrease* firm value \((X_1 \text{ and } X_2)\).

(ii) An increase in D/E ratio *closer to* the industry benchmark will *increase* firm value \((X_3 \text{ and } X_4)\).

In other words, the first statement is considered value-decreasing activities whereas the second statement is deemed value-increasing activities. If the analysis proved that the event conformed to the theoretical prediction, a dummy variable of one was assigned to the observation. If the event was not as predicted by the theory, a dummy variable of zero was assigned.

Based on the above explanation, 
\begin{align*}
X_1 \text{ and } X_2: & \text{ a dummy variable, takes value of 1 if an event is a value-decreasing capital structure adjustment event, i.e. an event that increased D/E ratio away from the industry ratio and resulted in negative CARs, 0 otherwise, and} \\
X_3 \text{ and } X_4: & \text{ a dummy variable, takes value of 1 if an event is a value-increasing capital structure adjustment event, i.e. an event that increased D/E ratio closer to the industry ratio and resulted in positive CARs, 0 otherwise.}
\end{align*}

The regression was first performed employing the overall sample. To test whether different levels of capital adjustments affected firm value differently, the events were later classified into groups, varying
between more than 5 percent and more than 20 percent according to their percentage change in D/E ratio as explained previously. Examination of the variables used in this study revealed that the measured values (mean, median and standard deviations) are approximately similar to those reported on these variables in this market. The regression was then performed on each group. The problem of heteroskedasticity was corrected by performing White’s heteroskedasticity-corrected (HC) standard errors.

To identify firm-specific variables correlated with price changes, a cross-sectional regression analysis is performed. The measured changes in value over the entire test event and the three-day CARs of each group of events are regressed against factors known to influence CARs. The regression equation is expressed as follows:

$$\text{CAR} = \beta_0 + \beta_1 \text{CHCS} + \beta_2 \text{ISSIZE} + \beta_3 \text{VAR} + \beta_4 \text{RUN} + \beta_5 \text{MRUN} + \beta_6 \text{CTAF} + \beta_7 \text{TAXSH} \quad (3)$$

where, CARs are the cumulative abnormal returns; CHCS are changes in a firm’s financial leverage as measured by the amount of issuing firm’s interest-bearing debt over market capitalization of a firm; ISSIZE is the planned proceeds (dollar amount) of each offer divided by the pre-announcement market capitalization of a firm; VAR is variance of daily share return over day -52 and -2; RUN is the common share return run-up over day -52 and -2 as measured by its CAR; MRUN is the market index return run-up over day -52 and -2 as measured by its CAR; CTAF is directional changes in a firm’s capital structure – it is a dummy variable that takes value of 1 if the event is considered value increasing(ed) event, i.e. ratio of D/E of a firm moves closer to its respective industry median, 0 otherwise; and TAXSH is the planned proceeds of the offering multiplied by corporate tax rate corresponding to the year of each announcement.

CHCS, VAR, TAXSH, and CTAF are motivated by theoretical considerations and found in earlier separate studies as relevant. These variables are used as proxies to test capital structure related theories, including optimal capital structure, agency, and signaling hypotheses. While CHCS, TAXSH, and CTAF are expected to have positive correlation with CARs, VAR is expected to be negatively correlated with CARs. ISSIZE and RUN are used to control for firm characteristics, MRUN is used to control for the market condition effect.

The significance of CARs in this study is tested using conventional t-test statistics discussed in Brown and Warner [1985] and Corrado and Zivney [1992]. The significance tests for CARs however are calculated slightly differently. The independent t-test statistic is used to test whether there are significant differences in the means of CARs over different windows between value-increasing and value-decreasing groups. The standard F-test is employed to test the significance of the overall model.

---

7 The t-statistics of cumulative abnormal return for any specific interval is

$$\text{CAR}_{k,l} \text{SEE} \text{CAR}$$

while SEE\text{CAR} is equal to

$$\sqrt{T \text{ var}(AAR)},$$

where SEE\text{CAR} is the standard error of estimates of CARs of observations within the event period, var\text{(AAR)} is variance of AAR, k is the beginning of the event period, l is the end of the event period, and T is the event period or |k-l| +1.
RESULTS

Relative Capital Structure and Share Prices

Prior to tests of relative capital structure, CARs associated with the events were analyzed. Out of 77 events, 26 announcements were value-increasing events and 51 announcements were value-decreasing events. The CARs surrounding the announcements of interest are presented in Exhibit 2.

Exhibit 2: Cumulative Abnormal Returns (CARs) Surrounding Straight Debt Announcements of Value-Increasing and Value-Decreasing Firms

<table>
<thead>
<tr>
<th>Cumulative Periods</th>
<th>Value-Increasing Group (26)</th>
<th>Value-Decreasing Group (51)</th>
<th>Value-Increasing Versus Value-Decreasing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CARs</td>
<td>t-statistics</td>
<td>CARs</td>
</tr>
<tr>
<td>-10,+10</td>
<td>0.705</td>
<td>0.594</td>
<td>1.473</td>
</tr>
<tr>
<td>-1,0</td>
<td>0.409</td>
<td>11.311***</td>
<td>0.055</td>
</tr>
<tr>
<td>-1,+1</td>
<td>1.085</td>
<td>2.292**</td>
<td>0.093</td>
</tr>
<tr>
<td>+2,+10</td>
<td>-0.109</td>
<td>-0.122</td>
<td>1.571</td>
</tr>
</tbody>
</table>

***, **, and * indicate statistical significance at the 0.01, 0.05 and 0.1 levels, respectively.

The results show that firms in value-increasing group generally experienced positive and significant CARs two and three days around announcement day. CARs for the test periods of days -1 to 0 and days -1 to +1 show a statistically significant positive association between announcement of interest and market reaction. In particular, the CARs for these periods are positive at 0.409 and 1.085 percent, respectively. While the first interval is statistically significant at 0.1 level with t-value of 11.311, the latter two intervals are statistically significant at 0.05 levels with t-values of 2.292. However, CARs for the post-event period of days +2 to +10 is negative and not statistically significant. Although CARs for the same test period of the value-decreasing group are positive, they are not statistically significant.

When observing the difference between the CARs of the two groups, both value-increasing and value-decreasing groups generally experience positive CARs around announcement day. However, CARs of the value-increasing group for small event periods of two and three day around the announcement day show a larger degree of positive market reactions to the announcements of interest than those of the value-decreasing group for the same periods. Also, it is noted that the strength of the sign for the period of days -1 to 0 is less profound than those for period of days -1 to +1. Specifically, CAR differences for the event periods of days -1 to 0 and -1 to +1 are 0.354 percent and 0.992 percent, respectively. However, only the latter interval is statistically significant. While the t-tests show that CARs differences between the value-increasing and value-decreasing groups for the period of days -1 to +1 is statistically significant at 0.05 level with t-value of 2.025, the z-tests indicate that the differences for this period is statistically significant at 0.10 level with z-values of -1.820.

The results obtained from analysis of CARs of value-increasing and value-decreasing groups provide a good basis for further analysis employing relative capital structure approach. To examine the relationship between firm value and capital structure movements relative to a firm’s respective capital structure industry ratio, the three-day CARs were regressed against dummy variables representing the association between theoretical predictions and directional changes in capital structure as explained in
research methodology section. Exhibit 3 provides the results of testing the effects of directional changes in capital structure relative to industry benchmark on firm value.

**Exhibit 3: Effects of Different Degree Capital Structure Changes Relative to Industry Benchmark on Firm Value**

Regressions were estimated for different groups of sample. To test the effect of different degree of capital structure changes on firm value, the sample was classified into three groups, according to levels of capital structure changes. These groups include those having percentage changes in capital structure between: (i) more than 5 percent and 10 percent; (ii) more than 10 percent and 20 percent; and (iii) more than 20 percent. The regression model is:

$$Z_{it} = b_{i0} + \sum_{j=1}^{4} b_j (X_j)_{it} + e_{it}$$

where, $Z_{it}$ is three-day CAR as a proxy for firm value; $b_{i0}$ is the intercept term which is significant if the left out factors are important; $\sum$ is summation operator for $j$: 1, 2, 3, and 4 event types; $e_{it}$ is the residual term, $b_j$ is coefficients of independent dummy variables; $X_1$ and $X_2$ are dummy variables, take value of 1 if an event is a value-decreasing capital structure adjustment event, i.e. an event that increased D/E ratio away from the industry ratio and resulted in negative CARs, 0 otherwise; $X_3$ and $X_4$ are dummy variables, take value of 1 if an event is a value-increasing capital structure adjustment event, i.e. an event that increased D/E ratio closer to the industry ratio and resulted in positive CARs, 0 otherwise.

<table>
<thead>
<tr>
<th>Event types</th>
<th>Hypotheses</th>
<th>Results from different filters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All sample (n = 77)</td>
</tr>
<tr>
<td>Model evaluation</td>
<td>H₀ = the model is not significance.</td>
<td>Adjusted R²</td>
</tr>
<tr>
<td>X₁: Value-decreasing group, i.e. D/E ratio moves away from Med</td>
<td>β &lt; 0</td>
<td>β</td>
</tr>
<tr>
<td></td>
<td></td>
<td>t-value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td>X₂: Value-decreasing group, i.e. D/E moves away from Med</td>
<td>β &lt; 0</td>
<td>β</td>
</tr>
<tr>
<td></td>
<td></td>
<td>t-value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td>X₃: Value-increasing group, i.e. D/E moves closer to Med</td>
<td>β &gt; 0</td>
<td>β</td>
</tr>
<tr>
<td></td>
<td></td>
<td>t-value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td>X₄: Value-increasing group, i.e. D/E moves closer to Med</td>
<td>β &gt; 0</td>
<td>β</td>
</tr>
<tr>
<td></td>
<td></td>
<td>t-value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sig.</td>
</tr>
</tbody>
</table>

***, **, and * indicate statistical significance at the 0.01, 0.05 and 0.1 levels, respectively.
Column A of Exhibit 3 shows that the model based on the overall sample of 77 observations is robust with an $F$ value of 8.122 and adjusted $R^2$ of 21.9 percent. The signs of coefficients show that $X_1$ and $X_2$ (value-decreasing groups) are negatively correlated with CARs whereas $X_3$ and $X_4$ (value-increasing groups) are positively correlated with CARs. The test parameters of these variables are statistically significant at 0.01 level with $t$-values of -3.943, -2.820, 0.444, and 3.301 for $X_1$, $X_2$, $X_3$, and $X_4$, respectively. These results are consistent with the optimal capital structure predictions in which a firm with a capital structure moving away from its relative optimal capital structure (industry median ratio) will experience a decrease in firm value and vice versa. This can be considered a direct test of the optimal capital structure theory and the results support hypotheses $H_1$ and $H_2$.

To test whether different levels of capital adjustments affect firm value differently, the observations were classified into three groups, varying between more than 5 percent and more than 20 percent, according to their percentage change in D/E ratios as stated previously. Columns B to D of Exhibit 3 reveal test results for different degree of changes in capital structure. Although the sample size for each group appears to be small, it meets marginally the assumptions underlying the Central Limit Theorem. As can be seen from the exhibit, the relationship between capital structure adjustment and firm value is statistically significant when firms change their capital structure between more than 10 percent. Interestingly, however, adjustments of capital structure below 10 percent generally do not provide firms with statistically significant changes in their firm value. Noticeable, most of the firms listed on the ASX, raised a small proportion of funds, relative to their current capital structure, through debt, reflecting in changes mostly in between 5 percent and 20 percent changes in capital structure after debt issuance. Only 29 firms increased their capital structure through debt financing. This observation reflects a firm’s caution about investor’s common perception, i.e. firms with exceptionally high proportion of debt are risky and would become unattractive for investors to hold and trade. Thus, due to a limited number of firms raising a large proportion of fund via debt, this paper can only conclude that changing capital structure via debt financing more than 10 percent will affect firm value significantly. However, the sample size does not allow for a further test, i.e. at what extent of debt financing (beyond 20 percent change) where borrowings will no longer provide firms with statistically significant changes in their firm value. To conclude, the statistical significances of the models evident in columns C and D of Exhibit 3 support $H_3$, i.e. changes in capital structure between more than 10 percent are significantly correlated with CARs associated with the debt financing decisions.

**Firm-Specific Variables**

In addition to heteroskedasticity check, the ensuing tests needed corrections for multicollinearity. The multicollinearity problem is handled by measuring the variance inflation factor (VIF). Exhibit 4 shows the results of cross-sectional regressions for straight debt announcements.

---

8 According to the Central Limit Theorem, the sampling distributions of means approach normal as the sample size increases and the sample size larger than 20 or 30 is sufficient for the normal distribution to provide an acceptable approximation and allow for inference about population parameters (Tabachnick and Fidell, 2001; Studenmund, 2001).

9 According to Gujarati (2003), as a rule of thumb, the VIF value of more than 10 indicates the potential multicollinearity problem as the closer is the tolerant value, the greater degree of multicollinearity. The VIF value in all models in this study, however, below the suggested level and the tolerant values are closer to 1. All independent variables were therefore remained in the regression models.
Exhibit 4: Cross-Sectional Regression Results

The regression model is:

$$
CAR = \beta_0 + \beta_1 CHCS + \beta_2 ISSIZE + \beta_3 VAR + \beta_4 RUN + \beta_5 MRUN + \beta_6 CTA + \beta_7 TAXSH
$$

where, CARs are the cumulative abnormal returns; CHCS are changes in a firm’s financial leverage as measured by the amount of issuing firm’s interest-bearing debt over market capitalization of a firm; ISSIZE is the planned proceeds (dollar amount) of each offer divided by the pre-announcement market capitalization of a firm; VAR is variance of daily share return over day -52 and -2; RUN is the common share return run-up over day -52 and -2 as measured by its CAR; MRUN is the market index return run-up over day -52 and -2 as measured by its CAR; CTA is directional changes in a firm’s capital structure – it is a dummy variable that takes value of 1 if the event is considered value increasing(ed) event, i.e. ratio of D/E of a firm moves closer to its respective industry median, 0 otherwise; and TAXSH is the planned proceeds of the offering multiplied by corporate tax rate corresponding to the year of each announcement. The regression models are estimated using OLS model. The tax shield is measured in dollar amounts whereas other values, except for the dummy variable, are measured in percentages. Panels A and B provide cross-sectional models of abnormal period return over days -10 and +10 and days -1 and +1, respectively.

<table>
<thead>
<tr>
<th>Panel A: CARs (-10,+10)</th>
<th>(Constant)</th>
<th>CHCS</th>
<th>ISSIZE</th>
<th>VAR</th>
<th>RUN</th>
<th>MRUN</th>
<th>CTA</th>
<th>TAXSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>-27.333</td>
<td>4.757</td>
<td>1.574</td>
<td>-0.049</td>
<td>0.225</td>
<td>-0.391</td>
<td>1.728</td>
<td>0.000</td>
</tr>
<tr>
<td>t-value</td>
<td>-1.234</td>
<td>1.154</td>
<td>1.449</td>
<td>-1.872</td>
<td>3.396</td>
<td>-2.713</td>
<td>1.039</td>
<td>0.022</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.224</td>
<td>0.256</td>
<td>0.155</td>
<td>0.068**</td>
<td>0.002***</td>
<td>0.010***</td>
<td>0.305</td>
<td>0.983</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.331</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-test</td>
<td>4.321</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td>0.001***</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: CARs (-1,+1)</th>
<th>(Constant)</th>
<th>CHCS</th>
<th>ISSIZE</th>
<th>VAR</th>
<th>RUN</th>
<th>MRUN</th>
<th>CTA</th>
<th>TAXSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>-34.379</td>
<td>4.636</td>
<td>1.533</td>
<td>-1.564</td>
<td>0.102</td>
<td>0.086</td>
<td>2.316</td>
<td>0.000</td>
</tr>
<tr>
<td>t-value</td>
<td>-2.774</td>
<td>2.475</td>
<td>2.143</td>
<td>-1.645</td>
<td>2.684</td>
<td>1.018</td>
<td>2.172</td>
<td>0.805</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.008***</td>
<td>0.018**</td>
<td>0.038**</td>
<td>0.108</td>
<td>0.011**</td>
<td>0.315</td>
<td>0.036**</td>
<td>0.426</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.168</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-test</td>
<td>2.352</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td>0.041**</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

***, ** and * indicate statistical significance at the 0.01, 0.05 and 0.1 levels, respectively.

Panel A of Exhibit 4 shows the regression results based on twenty-one-day (-10,+10) CARs as having significant fit of the model with $F$-value of 4.321 ($p<.01$) and an adjusted $R^2$ value of 0.331. The signs of coefficients of the tested independent variables in the model are consistent with theoretical predictions, i.e. changes in a firm’s capital structure, directional changes in a firm’s capital structure, and tax shield are positively correlated with the CARs whereas variance of share returns is negatively correlated with the CARs. Among these variables, only the variance of share returns is significant in explaining the CARs with $t$-value of -1.872 ($p<.1$). Additionally, the model demonstrates that among the control
variables, including issue size, share return ‘run-up’ and market index return ‘run-up’, share return ‘run-up’ and market index return ‘run-up’ are statistically significant with t-values of 3.396 (p<.01), and -2.713 (p<.01), respectively.

The findings reported in Panel B of Exhibit 4 show a significant relation between the CARs and potential explanatory variables, given the F-value of 2.352 (p<.05) and an adjusted R² value of 0.168. Similar to the model in Panel A, the sign of the tested coefficients are consistent with the hypothesized directions. Additionally, this model shows that directional changes in a firm’s capital structure and directional changes in a firm’s capital structure significantly influence variations in the CARs with t-values of 2.475 (p<.05) and 2.12 (p<.05), respectively. Additionally, two control variables, i.e. issue size and share return ‘run-up’, are also significant in explaining the CARs with the t-values of 2.143 (p<.05) and 2.684 (p<.05), respectively.

The regression results lend some support to the tested hypotheses. For instance, variance of share returns in the model based on twenty-one-day (-10,+10) shows significant relationship with CARs. Also, changes in a firm’s capital structure and directional changes in a firm’s capital structure in the model based on three-day (-1,+1) CARs contribute significantly to explaining the respective CARs. Although the signs of the coefficients for tax shield in both Models A and B are positive and consistent with theoretical prediction, this variable is not statistically significant in both models. This evidence is consistent with a study by Best [1997], who examined share price reaction to U.S. straight debt announcements in the context of default risk.

CONCLUSIONS

Although received theories suggest the existence of optimal capital structure, they have not specified the optimal level to-date. Academics and practitioners have relied heavily on industry mean or median as their benchmark. This study therefore aim to verify whether there exists the relationship between changes in capital structure relative to industry benchmark and the change in value of a firm; also, the extent to which changes in capital structure affect firm value.

The research design is centered on the concept of relative capital structure by comparing a firm’s debt-equity ratio to its respective industry median. The price impact is identified by measuring the cumulative abnormal returns at the time of capital structure changes. The results indicate that market participants appear to use information on changes in capital structure of firms at the time of announcements and also react quickly upon the information. The findings show that the observed share price effect is positive for firms whose capital structure moves closer to their industry median, and is negative for those whose capital structure moves away from industry median. Apart from the effects of pecking order or signaling hypotheses, abnormal gains/losses to firms documented in this paper, are consistent with the predictions of optimal capital structure theory and the tax-shield value gains and losses. Thus, the market appears to perceive the industry median as an appropriate capital structure benchmark. The significant difference between CARs of firms adjusting their capital structure closer to their benchmark and those of firms adjusting their leverage away from their benchmark further indicates market recognition of the benchmark, i.e. industry median debt-equity ratio. A regression analysis later confirms the robustness of this finding as it shows that markets perceive industry median debt-equity ratio as an important determinant of share value.

These tests of effects of capital structure changes relative to industry benchmark, which is industry median in this study, yielded a direct test of optimal capital structure. The results of this study therefore
could serve as a practical guideline on capital structure decisions at times of financing for Australian firms.

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